CGC, Inc.
Construction • Geotechnical
Consulting Engineering/Testing

December 27, 2023
C23394

Mr. Rodney Figueroa
Superintendent
Monroe School District
(rodneyfigueroa@monroe.k12.wi.us)

Re: Geotechnical Exploration Report – REV. 1
Proposed Monroe High School Campus
31st Avenue
Monroe, Wisconsin

Dear Mr. Figueroa:

Construction • Geotechnical Consultants, Inc. (CGC) has completed the subsurface exploration program for the above-referenced project. The purpose of this program was to evaluate the subsurface conditions within the proposed construction area and to provide geotechnical recommendations regarding site preparation, foundation, floor slab, below-grade wall, retaining wall, and pavement design/construction. A determination of the site class for seismic design is also included, along with a *preliminary* discussion on stormwater infiltration potential. We are sending you an electronic copy of this report, and we can provide a paper copy upon request. Electronic copies of this report are also being sent to members of the project team at Fehr Graham and CG Schmidt.

SITE CONDITIONS AND PROJECT DESCRIPTION

We understand that an approximately 70-acre site, encompassing multiple contiguous parcels, located east of 31st Avenue and generally southwest of WI-11, in Monroe, Wisconsin has been chosen as the location of the new Monroe High School campus. The project site is currently farmland and is bounded by a commercial property to the south, as well as residential properties to the west and northwest, and additional farmland to the north and southeast.

Based on the provided site grading information, the site is rolling and existing topography generally slopes from the northern and western portions of the property down towards the south and east at elevations ranging between about EL 1100 and 1010 ft.

We understand the high school campus is envisioned to include a two-story, slab-on-grade high school, new sports courts and fields, parking lots and driveways, and associated utilities. From the provided grading plan, we understand the finished floor elevations of the new high school are planned to be established at EL 1066.50 ft, 1076.50 ft, and 1080.50 ft. Based on the provided cut/fill exhibit, we also

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understand significant cutting/filling on the order of about 21 to 24 ft is planned across the site to establish site, building, pavement and sports court/field grades.

SUBSURFACE CONDITIONS

Subsurface conditions for this study were explored by drilling 58 Standard Penetration Test (SPT) soil borings to depths of 3.8 to 21.9 ft within planned pavement, building, stormwater and playing field areas. Note that auger refusal on probable dolomite bedrock occurred in the majority of the borings; the depths of auger refusal (where encountered) are summarized below in Table 1. The borings were conducted by Soil Essentials (SE; under subcontract to CGC) on October 26 to November 7, 2023, using a track-mounted Geoprobe 7822 ATV drill rig equipped with hollow stem augers, and an automatic SPT hammer. The specific procedures used for drilling and sampling are described in Appendix A.

The soil boring locations were selected and surveyed by Fehr Graham, who provided the ground surface elevations to CGC. Note that slight offsetting of the B-56 and B-58 locations was required for accessibility during drilling. The offset distances and directions are noted on the Soil Boring Logs in Appendix B, and the locations are shown on the Soil Boring Location Exhibit presented in Appendix B.

The subsurface profiles at the boring locations slightly varied, but can be described, in general terms, by the following strata (in descending order):

- About 2 to 18 in. of ***topsoil***; followed by
- About 2.5 ft of loose ***silt*** in B-26, B-50, and B-51; over
- Roughly 0 to 3 ft of loose to medium dense ***clayey sand***, ***clayey sand*** to ***sandy lean clay***, and/or ***sand*** with significant silt and gravel contents; over
- Approximately 0 to 18 ft of very soft to hard/very loose to medium dense ***silty clay*** to ***silt, silty*** to ***lean clay***, ***lean clay***, ***lean*** to ***fat clay***, and/or ***fat clay*** with varying sand and gravel contents, occasionally classified as *possible* or *probable highly weathered* or *weathered dolomite bedrock.* In the borings that did not terminate or reach auger refusal in these soils, they were generally followed by:
- About 2.5 to 15 ft of loose to medium dense ***silt*** in B-6, B-11, B-12, B-20, B-44, B-49, and B-52; over
- Very loose to very dense ***sand*** soils with significant silt and gravel contents, as well as scattered silt and clay pockets and seams, mostly classified as *probable weathered dolomite bedrock*, to auger refusal.

As an exception to the profile outlined above, a *sand* layer was encountered directly above the *silt* layer in B-11, B-12, B-20, B-49 and B-52. As a further exception, the *sand* and/or *silt* layers described previously were encountered between *clay* or *clayey* layers in B-3, B-9, B-11, B-12, B-29, B-33, B-37, and B-38.

Representative clay and silt samples were tested for their natural moisture contents in our laboratory, and the tests yielded results ranging between 10.8 and 34.3%. To aid in their classification, representative clay samples were also analyzed with regard to their liquid and plastic (Atterberg) limits. The lab test results are included in the right-hand columns on the soil boring logs. The Atterberg limits and resulting plasticity indices suggest the plasticity of the clays vary from relatively low to high plasticity. Typically, the higher natural moistures were associated with the higher plasticity clay soils with depth. In addition, one silt sample was analyzed for its organic contents via loss-on-ignition testing. The result of this test was a value of 3.1%, indicating a silt with trace organics. For reference, soils with an organic content below 4.0% are considered inorganic or containing only trace amounts of organic material. Based on Atterberg limits, natural moisture and organic contents, pocket penetrometer readings (q_p-values; an estimate of the unconfined compressive strength of cohesive soils) and SPT blow counts (N-values), the cohesive soils should be considered *slightly to moderately compressible.*

Clays that exhibit higher plasticity should be considered slightly susceptible to shrinking and swelling in response to natural moisture contents. Additional discussion regarding high plasticity clays is included in the following sections.

As noted above, probable *weathered bedrock* was encountered at the majority of the boring locations, and we have included a summary of the depths to top of weathered bedrock and auger refusal (likely indicating the top of harder/more competent bedrock) at each boring location in Table 1 below. However, it must be noted that the drilling and sampling procedures can disturb/degrade bedrock, which can make it difficult to distinguish between soil and weathered bedrock in some cases. The depth and consistency of bedrock should be expected to vary across the site.

TABLE 1 – Approximate Bedrock Depths

Boring	Approximate Existing Surface Elevation (ft)	Approximate Depth to Weathered Bedrock		Approximate Depth of Auger Refusal	
		Depth (ft)	Elevation (ft)	Depth (ft)	Elevation (ft)
1	1094.7	N.E.	-	N.E.	-
2	1071.7	6.0	1065.7	N.E.	-
3	1082.1	N.E.	-	N.E.	-
4	1084.8	6.0	1078.8	18.9	1065.9
5	1060.1	3.5	1056.6	9.9	1050.2
6	1070.5	6.0	1064.5	9.2	1061.3
7	1081.8	8.5	1073.3	N.E.	-
8	1064.1	0.7	1063.4	9.2	1054.9

TABLE 1 - Continued

9	1049.3	6.0	1043.3	11.3	1038.0
10	1070.4	6.0	1064.4	13.9	1056.5
11	1088.2	13.5	1074.7	21.9	1066.3
12	1100.3	13.5	1086.8	19.5	1080.8
13	1088.9	8.5	1080.4	N.E.	-
14	1048.1	0.9	1047.2	6.9	1041.2
15	1034.3	1.5	1032.8	8.7	1025.6
16	1042.8	0.9	1041.9	8.9	1033.9
17	1019.2	6.0	1013.2	N.E.	-
18	1057.3	0.9	1056.4	8.7	1048.6
19	1071.1	6.0	1065.1	N.E.	-
20	1080.0	8.5	1071.5	13.8	1066.2
21	1078.5	0.9	1077.6	14.0	1064.5
22	1072.0	3.5	1068.5	9.0	1063.0
23	1056.2	1.0	1055.2	9.1	1047.1
24	1056.7	N.E.	-	N.E.	-
25	1062.7	6.0	1056.7	N.E.	-
26	1033.0	6.0	1027.0	N.E.	-
27	1047.9	6.0	1041.9	N.E.	-
28	1057.9	3.5	1054.4	N.E.	-
29	1051.9	6.0	1045.9	N.E.	-
30	1068.0	6.0	1062.0	N.E.	-
31	1069.1	6.0	1063.1	15.1	1054.0
32	1046.4	0.6	1045.8	7.1	1039.3
33	1074.8	13.5	1061.3	N.E.	-
34	1044.0	1.2	1042.8	11.3	1032.7
35	1084.9	13.5	1071.4	18.8	1066.1
36	1092.1	13.5	1078.6	16.7	1075.4
37	1085.1	13.5	1071.6	18.9	1066.2
38	1075.5	6.0	1069.5	14.1	1061.4
39	1076.4	6.0	1070.4	10.9	1065.5
40	1088.4	13.5	1074.9	18.8	1069.6
41	1083.7	8.5	1075.2	18.9	1064.8

TABLE 1 - Continued

42	1076.2	8.5	1067.7	18.8	1057.4
43	1062.3	3.5	1058.8	5.4	1056.9
44	1073.4	13.5	1059.9	16.9	1056.5
45	1085.2	6.0	1079.2	18.7	1066.5
46	1084.6	13.8	1070.8	13.8	1070.8
47	1081.3	0.7	1080.6	13.9	1067.4
48	1066.7	0.9	1065.8	10.1	1056.6
49	1050.1	23.5	1026.6	N.E.	-
50	1016.6	3.5	1013.1	N.E.	-
51	999.6	6.0	993.6	8.9	990.7
52	1004.9	13.5	991.4	N.E.	-
53	996.6	0.3	996.3	N.E.	-
54	986.8	0.3	986.5	8.9	977.9
55	979.1	0.1	979.0	3.8	975.3
56	950.0	3.5	946.5	11.4	938.6
57	952.4	3.5	948.9	N.E.	-
58	958.1	6.0	952.1	N.E.	-

Note: N.E. = Not Encountered.

Groundwater was encountered during drilling at depths of about 3.5 and 8.5 ft in B-56 and B-57. Note that these borings were conducted at elevations about 6 to 30 ft *lower* than the other nearby borings. Groundwater was otherwise not encountered across the project site. In general, groundwater levels on this site should be expected to fluctuate with seasonal variations in precipitation, infiltration, evapotranspiration, and other factors.

A more detailed description of the site soil and groundwater conditions is presented on the individual soil boring logs attached in Appendix B, which also contain the laboratory test results.

DISCUSSION AND RECOMMENDATIONS

Subject to the limitations discussed below and based on the subsurface exploration, it is our opinion that the site is generally suitable for development and that the planned building can be supported by a conventional shallow spread footing foundation system, *with the understanding that undercutting/replacement of potentially unsuitable native clays could be required beneath footings.*

Isolated shallow undercutting/stabilization of moisture-sensitive clay soils may also be required to develop stable conditions for pavement support. Further, bedrock excavation may be required for deeper footing or utility excavations, depending on final grades. Our recommendations for site preparation, foundation, floor slab and pavement design/construction, along with our assessment of the site class for seismic design and a *preliminary* discussion of the stormwater infiltration potential, are presented in the following subsections. Additional information regarding the conclusions and recommendations presented in this report is discussed in Appendix C.

1. Site Preparation

A. General

We recommend that topsoil be stripped at least 10 ft beyond the proposed construction area, including areas requiring fill beyond the building footprint and pavement limits. Topsoil can be stockpiled on-site and later re-used as fill in landscaped or sports field areas. As noted previously, topsoil was about 2 to 18 inches thick in the borings, but variable topsoil thicknesses should be expected between and beyond boring locations due to previous agricultural activities on the site.

After topsoil stripping, the exposed subgrades are generally expected to consist of native clays, sands or silts. In areas remaining at grade or requiring additional fill, we recommend that cohesive and fine-grained subgrades (i.e., clay and silt) be statically recompacted (i.e., without vibration) and subsequently proof-rolled with a piece of heavy rubber-tire construction equipment, such as a loaded tri-axle dump truck, to check for soft/yielding areas. If soft/yielding areas are observed, these soils should be undercut and replaced with granular backfill compacted to at least 95% based on modified Proctor methods (ASTM D1557) in accordance with our Recommended Compacted Fill Specifications presented in Appendix D. Alternatively, 3-in. dense graded base (DGB) placed in loose 10-in. lifts and compacted until deflection ceases can also be used to restore grades in undercut areas. Granular subgrades (i.e., sands and gravels) should be thoroughly recompacted with a vibratory smooth-drum roller, and zones that remain loose after recompaction should be undercut and replaced as described above. Areas subsequently receiving fill should be checked for their footing, floor slab and pavement support suitability prior to fill placement, as applicable. *Note that the fairly widespread surficial clay and silt soils are generally considered moisture-sensitive and susceptible to disturbance from repetitive construction traffic, and we therefore recommend the project budget include a generous contingency for subgrade undercutting or stabilization in new pavement and floor slab areas, and to create a stable base for structural fill.*

Following the development of a firm and stable subgrade, fill placement to establish site, pavement and building grades can proceed. We anticipate somewhat isolated fill placement of between about 1 ft to 7.5 ft above existing ground surface elevations generally within the northeastern corner of the building to establish floor slab grades. To the extent possible, we recommend using granular soils (i.e., sands/gravels, including on-site sands and weathered bedrock if selectively excavated and stockpiled) as structural fill within the building envelope and in the upper 1± ft within pavement areas because

these soils are relatively easy to place and compact in most weather conditions compared to clay/silt soils. If weathered to competent bedrock will be used as fill, the material should be crushed/processed to less than about 3-in. in size and contain an adequate number of fines to fill void spaces during compaction. Clay and silt soils excavated on-site are generally not recommended as structural fill because moisture conditioning by discing and drying (aeration) will likely be required to achieve desired compaction levels, which is highly weather-dependent (i.e., dry, warm and windy conditions) and could delay construction progress. In our opinion, clay/silt soils are best used as fill in landscaping or potentially as lower lifts in pavement areas provided the moisture contents can be sufficiently lowered from the natural states to facilitate compaction efforts. We recommend that structural fill be compacted to at least 95% based on modified Proctor methods (ASTM D1557) following Appendix D guidelines. Periodic field density tests should be taken by CGC staff within the fill to document the adequacy of the compaction effort.

Maximum fill heights of up to about 10.5 ft will be required to establish floor slab elevations within the northeastern part of the building and site grades immediately surrounding the building footprint. Due to the weight of the fill and the presence of slightly to moderately compressible clay soils on this site, we recommend the fill within the building footprint (and an adequate distance beyond the building limits) be placed early in the construction during establishment of finished floor slab grades to allow the existing cohesive soils to consolidate and settle under the weight of the new fill prior to beginning footing and floor slab construction, in order to limit post-construction settlements to typically tolerable levels. We recommend the full height of the fill be placed *(i.e., to floor slab subgrade elevation)*, followed by a time delay/consolidation period on the order of about 1 to 3 months (potentially longer, pending the evaluation of survey data). Settlement platforms (see details in Appendix F) or monitoring points should be established within the building footprint to monitor settlement progress. The settlement monitoring points should be surveyed at the time of installation, immediately after the full height of the fill reaches the floor slab subgrade elevation, at least twice a week in the first two weeks after fill placement, and then weekly to bi-weekly thereafter until three consecutive sets of survey readings indicate that settlement has largely ceased. Foundation construction within the monitoring area can begin after the settlement data indicates that fill-induced settlement has largely ceased.

As noted previously, the depth and consistency of bedrock should be expected to vary across the site. Therefore, we recommend that series of test pits be performed during early stages of construction to better understand the presence (or lack) of bedrock and the extents of which excavation difficulty which may occur during excavation and foundation construction, as well as deeper utility installation.

As a general “rule of thumb”, it has been our experience that excavation within bedrock to the level of auger refusal in the soil borings can typically be accomplished using conventional earthwork equipment and techniques, including a narrow bucket and/or a single point ripping tooth. Excavations in bedrock that extend below the level of auger refusal typically require special bedrock removal techniques, such as chiseling with an excavator-mounted rock chipper, blasting, etc. Rock excavation considerations are contained in Appendix E. *We recommend that a unit rate for rock excavation be established in the bidding documents and that the project budget include a rock excavation volume*

and contingency. Note that rock excavation should be clearly defined in the project specifications. Alternative rock excavation definitions may require adjusting the rock line.

B. Athletic Field Provisions

Since surface water infiltration will be somewhat limited by the clay layers (natural and newly-placed fill), installation of a drainage system or grading of the athletic fields may be required in order to laterally transmit precipitation away from the fields in order to maintain playable surfaces following periods of wet weather. A typical drainage system may include a layer of open-graded aggregate below the playing surface, with an underdrain system within or slightly below the stone layer. The underdrain system would be sloped to promote drainage to a new or existing stormwater collection system. As an alternative to underdrains, the fields could potentially be graded to promote surface runoff to stormwater collection systems to reduce the likelihood of water ponding within low areas of the fields. Additional details regarding *preliminary* on-site stormwater management are discussed in a later section of this report.

2. Building Foundations

We understand that the finished floor elevations of the slab-on-grade building are planned to be established at EL 1066.50, 1076.50, and 1080.50 ft, roughly 7.5 ft above to about 21.5 ft below current site grades. Perimeter footings are expected to bear at frost depth, a minimum of 4 to 5 ft below adjacent finished site grades, and interior footings may bear at slightly shallower depths. As such, we anticipate footing subgrades to largely consist of stiff to hard/loose clay and clayey soils, loose to very dense sand soils (including weathered dolomite bedrock in some areas), or newly placed structural fill. *Softer clays, if present, will require undercutting and replacement where encountered at and below footing grades.*

Provided unsuitable soils are undercut and replaced below the bottom of footings, we recommend the following parameters should be used for foundation design:

- Maximum net allowable bearing pressure: 3,000 psf

- Minimum foundation widths:
  - Continuous wall footings: 18 in.
  - Column pad footings: 30 in.

- Minimum footing depths below finish site grades:
  - Exterior/perimeter footings: 4 ft
  - Interior footings: no minimum requirement

Recognizing that footing subgrades will vary across the building footprint, a CGC field representative should be present during footing excavations to document that the native soils exposed at the bottom of footing and undercut excavations are suitable for footing support, or otherwise advise on corrective measures, such as undercutting. We recommend using a smooth-edged backhoe bucket for footing/undercut excavations. A bucket with teeth is acceptable if excavations extend into granular or weathered bedrock layers. Where required, the base of undercut excavations should be widened beyond the footing edges at least 0.5 ft in each direction for each foot of undercut depth for stress distribution purposes. Granular soils, including weathered bedrock, exposed at footing grades or at the bottom of undercut excavations should be thoroughly recompacted with a large vibratory plate compactor or an excavator-mounted hoe-pack prior to backfilling or formwork/concrete placement to densify material loosened during excavation. Soils potentially susceptible to disturbance from vibratory compaction (e.g., cohesive/fine-grained soils or sands with elevated moisture content) should be hand-trimmed. Larger pieces of loosened bedrock which cannot be adequately recompacted should be removed. OSHA slope guidelines should be followed if workers need to enter footing or undercut excavations.

Undercutting will be required where native clays with q_p-values of less than 1.5 tsf are encountered at and slightly below the bottom of footings designed for an allowable bearing pressure of 3,000 psf. In addition, loose sands that are present at or slightly below design footing grades should be undercut and replaced if they cannot be recompacted satisfactorily in-place. Where unsuitable soils have been undercut, we recommend granular backfill compacted to at least 95% compaction based on modified Proctor methods (ASTM D1557), in accordance with the Recommended Compacted Fill Specifications presented in Appendix D, be used to restore footing grades. Alternatively, 3-in. DGB (or weathered bedrock excavated on-site) that is placed in loose 10-in. lifts and compacted until deflection ceases can also be used to restore footing grades in undercut areas.

Provided the foundation design/construction recommendations discussed above are followed, including early-fill placement within the building pad, we estimate that total and differential settlements should be on the order of 1.0 and 0.5 in., respectively.

3. Floor Slab

The floor slabs are expected to generally be supported on a combination of medium stiff/very loose silty clay to silt, very stiff to hard lean to fat clay, loose to medium dense sand, and newly placed structural fill, up to about 7.5 ft above current site grades. Prior to slab construction, granular subgrade soils should be thoroughly recompacted with a vibratory smooth-drum roller to densify soils that may become disturbed or loosened during construction activities. Cohesive or fine-grained subgrades should be statically recompacted and subsequently proof-rolled to check for soft/yielding areas. Areas of disturbed soil or where soils remain loose after recompaction should be undercut and replaced with compacted 3-in. DGB or granular fill. *Some undercutting/replacement or stabilization of moisture-sensitive clay and clayey soils will likely be required to create firm and stable conditions for floor slab support, and we recommend that the project budget include a generous contingency for such operations.*

To act as a capillary break below the floor slabs, we recommend including a minimum 6-in. thick layer of well-graded sand/gravel with less than 5% by weight passing the No. 200 U.S. standard sieve. Note, however, that some structural engineers require a layer of dense graded base, such as 1¼-in. DGB, rather than sand/gravel below floor slabs to increase the subgrade modulus immediately below the slab. To further reduce the potential for moisture migration through the slab, a plastic vapor barrier can also be utilized. Fill and base layer material below the floor slab should be placed as described in the Site Preparation section of this report. Slabs constructed on a minimum 6-in. thick dense graded base layer may be designed utilizing a subgrade modulus of 150 pci, and a subgrade modulus of 100 pci should be used for the design of slabs that are constructed on a sand/gravel layer. The design subgrade moduli are based on a firm or adequately stabilized, recompacted subgrade such that non-yielding conditions are developed. The slab should be structurally separated from the footings with a compressible filler and have construction joints and reinforcement for crack control.

4. Shrink/Swell Considerations

As discussed previously, the high plasticity (fat) clays present within portions of this site are considered susceptible to shrinking and swelling in response to moisture changes. These soils are generally expected below footings and slab-on-grade and may also be used as fill/backfill in areas. Therefore, as a precaution against the potential for shrink/well of these soils, it is important that exterior grades be sloped to provide positive drainage away from the building. Roof drains should discharge into a storm sewer or stormwater management system that is located a sufficient distance away from the building such that water does not migrate back towards the building. In addition, rapidly growing trees or other vegetation with deep roots should not be planted in close proximity to the building.

Where footing grades be established within high-plasticity clay, the subgrades should be protected against moisture fluctuations between the time of exposure and footing concrete placement to reduce the potential for post-construction settlement as a result of swelling and shrinking. CGC can assist in the identification of such soils during construction.

5. Seismic Site Class

In our opinion, the average soil properties in the upper 100 ft of the site (based on the presence of weathered to competent bedrock on this site) can be characterized as a very dense soil and soft rock profile. This characterization would place the site in Class C for seismic design according to International Building Code and ASCE 7.

6. Below-Grade Walls

We anticipate that below-grade walls of the high school, where unbalanced soil loads are present, will be laterally supported by the slab-on-grade and upper-level framing. Therefore, *at-rest* lateral earth pressures should be used during design of these walls. To reduce the buildup of such pressures, high-quality backfill should be placed within 4 to 6 ft of the walls. We recommend that a perimeter drainage

system be installed to intercept potential surface water infiltration and that the granular backfill be continuously connected to the drainage system, which discharges water by means of one or more sump pumps. Alternatively, the perimeter drainage system could also be designed to "daylight" down slope if site grades allow. The granular backfill should be well-graded sand or gravel having no more than 12% by weight passing the No. 200 U.S. standard sieve (i.e., USCS designations SP, SP-SM, GP or GP-GM). Some of the on-site sands were found to have higher amounts of fines (denoted SM on the boring logs) but may potentially also be used as wall backfill if a three-dimensional drainage board is included in the wall design. Soils containing cobbles/boulders should not be used in direct contact with below-grade walls. To impede the inflow of surface moisture, the final 2 ft of backfill in unpaved areas should consist of a clayey fill cap. The clayey cap (or pavement) should be graded to promote positive drainage away from the walls.

Before placing the wall backfill, the exterior walls should be damp-proofed with spray-applied or mopped-on rubber or bituminous sealer. Compaction of the backfill within 3 to 5 ft of the walls should be performed with lightweight equipment to avoid the development of excessive lateral earth pressures. The backfill should be compacted to a minimum of 93% modified Proctor following Appendix D guidelines. *Note, however, that a minimum 95% compaction of the wall backfill is recommended in the upper 2± ft within pavement areas or where shallow exterior footings or stoops will bear within the backfill.* Lower-level walls constructed in accordance with the above recommendations may be designed for an equivalent fluid pressure of 55 psf per ft of depth (*at-rest* conditions). Additionally, the wall design should also account for surcharge effects that could be applied during or after construction.

7. Retaining Walls

Site retaining walls that are not laterally restrained from rotating can be designed for *active* earth pressures behind the walls and *passive* pressures in front of the walls. Lateral earth pressures behind the retaining walls can be reduced by backfilling with sand with less than 12% passing the No. 200 U.S. standard sieve, as described in the preceding section. In addition, weepholes should be placed near the base of these walls on 10-ft centers to provide drainage of the wall backfill. The weepholes should be hydraulically connected with the backfill and should be protected with a non-woven geotextile fabric to minimize soil loss through the weepholes. The wall designer may have other and/or additional drainage requirements.

Retaining walls constructed in accordance with the above recommendations may be designed for an *active* equivalent fluid pressure of 35 psf per ft of depth. *Passive* pressures are expected to be on the order of 200 psf per ft of depth. The passive pressure value includes a safety factor of 2 to prevent excessive wall deflection. The retaining wall design should also take into account surcharge effects which could be applied during or after construction.

We recommend using an *ultimate* concrete to soil friction factor of 0.3 for retaining wall footings bearing on at least medium stiff clay and silt soils. For footings bearing on sand, an *ultimate* concrete to soil friction factor of 0.4 may be implemented.

8. Pavement Design

We anticipate that pavement design will be controlled by the surficial clay soils observed in the borings. Subgrades should be prepared as described in the Site Preparation section of this report, with recompaction/proof-rolling completed prior to base course and asphalt placement. *We recommend that the budget include a generous contingency for pavement subgrade undercutting/stabilization where clay soils are present immediately below planned base course elevations, which may involve about 12 in. of additional coarse aggregate (e.g., 3-in. DGB), potentially over biaxial geogrid (e.g., Tensar BX Type 1 or equivalent).* The areas requiring undercutting/stabilization and the depth of undercutting should be determined in the field by proof-rolling prior to installing the base course layer, and the need for undercutting/stabilization will likely depend on the weather conditions during construction, as the anticipated subgrade soils can be susceptible to disturbance/weakening from precipitation and repeated construction traffic. The need for undercutting below the pavement section will likely be reduced where site grades are raised at least 2 ft above existing grade with high-quality granular fill.

We anticipate that asphalt pavement on this site, such as in smaller parking lot areas, would generally be exposed primarily to automobile traffic with less than one 18-kip equivalent single axle load (ESAL) per day. In view of this, we have assumed Traffic Class I following Wisconsin Asphalt Pavement Association (WAPA) recommendations for parking areas and driveways that are mainly used by light passenger vehicles. However, main sections of driveways where trucks could routinely travel, as well as parking lots with 50 or more stalls are expected to experience heavier traffic loads and we have assumed a traffic load of up to 5 ESALs per day and Traffic Class II according to WAPA. We have also included a heavy-duty pavement section for areas where more concentrated truck traffic could be expected. The pavement sections summarized in Table 1 below were selected assuming a Soil Support Value "SSV" of about 4.0 for a firm or adequately stabilized clay subgrade and a design life of 20 years.

Table 2 - Recommended Pavement Sections

Material	Thicknesses (in.)			WDOT Specification (1)
	Traffic Class I (Light Duty)	Traffic Class II (Medium Duty)	Traffic Class III (Heavy Duty)	
Bituminous Upper Layer (2,3)	1.75	1.75	2.0	Section 460, Table 460-1
Bituminous Lower Layer (2,3)	1.75	2.25	3.0	Section 460, Table 460-1
Dense Graded Base Course (2,4)	8.0	10.0	12.0	Sections 301 and 305
Total Thickness	**11.5**	**14.0**	**17.0**	

Notes:

1) Wisconsin DOT *Standard Specifications for Highway and Structure Construction*, latest edition, including supplemental specifications, and *Wisconsin Asphalt Pavement Association 2022 Asphalt Pavement Design Guide*.

2) Compaction requirements:
   - Bituminous concrete: Refer to Section 460-3.
   - Base course: Refer to Section 301.3.4.2, Standard Compaction

3) Mixture Type LT (or E-0.3) bituminous; refer to Section 460, Table 460-2 of the *Standard Specifications*.

4) The upper 4 in. should consist of 1¼-in. DGB; the bottom part of the layer can consist of 3-in. DGB.

The recommended pavement sections assume regular maintenance (crack sealing, etc.) will occur, as needed. Note that if traffic volumes are greater than those assumed, CGC should be allowed to review the recommended pavement sections and adjust them accordingly. Alternative pavement designs may prove acceptable and should be reviewed by CGC. If there is a delay between subgrade preparation and placing the base course, the subgrade should be recompacted.

Where concrete pavement may be used, such as in pavement areas subjected to concentrated wheel loads (e.g., dumpster pads, entrance lanes, loading zones, etc.), we recommend that the concrete should

be at least 6 in. thick and contain adequate reinforcement for crack control. Concrete slabs underlain by a minimum 6-in. thick dense graded base layer over a firm or stabilized subgrade can be designed utilizing a subgrade modulus of 150 pci.

9. Preliminary Stormwater Infiltration Potential

We understand that stormwater management facilities are planned in conjunction with the development, generally located in the northeastern and southern parts of the site. Borings B-17, B-26 and B-27, performed in these areas, were therefore evaluated with regard to their stormwater infiltration potential. The subsurface profiles in these borings were generally similar and included lower-permeability clay loam, silty clay loam and silt loam strata over bedrock. As an exception, B-27 terminated at the planned depth of 15 ft below the existing ground surface within clay soils, prior to encountering bedrock. Please refer to the Wisconsin Department of Safety & Professional Services *Soil and Site Evaluation – Storm* forms, which are attached in Appendix G, for a more detailed description of the subsurface profile in B-17, B-26 and B-27. Based on the presence of lower-permeability soils over bedrock, we anticipate that the site is not conducive for stormwater infiltration.

CONSTRUCTION CONSIDERATIONS

Due to variations in weather, construction methods and other factors, specific construction problems are difficult to predict. Soil related difficulties which could be encountered on the site are discussed below:

- Due to the potentially sensitive nature of some of the on-site soils, we recommend that final site grading activities be completed during dry weather, if possible. Construction traffic should be avoided on prepared subgrades to minimize potential disturbance.

- Contingencies in the project budget for subgrade stabilization with coarse aggregate in pavement and floor slab areas should be increased if the project schedule requires that work proceed during adverse weather conditions.

- Earthwork construction during the late fall through early spring could be complicated as a result of wet weather and freezing temperatures. During cold weather, exposed subgrades should be protected from freezing before and after footing construction. Fill should never be placed while frozen or on frozen ground.

- Excavations extending greater than 4 ft in depth below the existing ground surface should be sloped or braced in accordance with current OSHA standards.

- Based on the observations made during our field explorations and proposed building elevations, infiltration of groundwater into footing and undercut excavations is generally not expected. However, water accumulating at the bottom of excavations as a result of precipitation should be quickly removed in a similar manner. Dewatering means and methods are the contractor's responsibility.

RECOMMENDED CONSTRUCTION MONITORING

The quality of the foundation, floor slab and pavement subgrades will be largely determined by the level of care exercised during site development. To check that earthwork and foundation construction proceed in accordance with our recommendations, the following operations should be monitored by CGC:

- Topsoil stripping and subgrade proof-rolling/compaction;
- Fill/backfill placement and compaction;
- Foundation excavation/subgrade preparation; and
- Concrete placement.

* * * * *

It has been a pleasure to serve you on this project. If you have any questions or need additional consultation, please contact us.

Sincerely,

CGC, Inc.

Emma Carew

Emma L. Carew, EIT
Staff Engineer

Michael N Schultz

Michael N. Schultz, PE
President/Principal Consulting Engineer

Encl: Appendix A - Field Exploration
Appendix B - Soil Boring Location Exhibit
Logs of Test Borings (58)
Log of Test Boring-General Notes
Unified Soil Classification System
Appendix C - Document Qualifications
Appendix D - Recommended Compacted Fill Specifications
Appendix E - Rock Excavation Considerations
Appendix F - Settlement Platform
Appendix G - WDSPS *Soil and Site Evaluation – Storm* Form

CC: Mr. Jesse Duff, PE – Fehr Graham; Mr. Dan Chovanec – CG Schmidt

APPENDIX A

FIELD EXPLORATION REPORT

CGC, Inc.

APPENDIX A

FIELD EXPLORATION

Subsurface conditions on this site were explored by drilling a total of 58 Standard Penetration Test (SPT) soil borings to depths between 3.8 and 25 ft below current site grades, which were generally sampled at 2.5-ft intervals to a depth of 10 ft and at 5-ft intervals thereafter. The soil samples were obtained in general accordance with specifications for standard penetration testing, ASTM D1586. The specific procedures used for drilling and sampling are described below.

1. Boring Procedures between Samples

   The boring is extended downward, between samples, by a hollow-stem auger or mud-rotary drilling.

2. Standard Penetration Test and Split-Barrel Sampling of Soils
   (ASTM Designation: D1586)

   This method consists of driving a 2-inch outside diameter split-barrel sampler using a 140-pound weight falling freely through a distance of 30 inches. The sampler is first seated 6 inches into the material to be sampled and then driven 12 inches. The number of blows required to drive the sampler the final 12 inches is recorded on the log of borings and is known as the Standard Penetration Resistance.

During the field exploration, the driller visually classified the soil and prepared a field log. *Field screening of the soil samples for possible environmental contaminants was not conducted by the driller as these services were not part of CGC's work scope.* Water level observations were made in each boring during and after drilling and are shown at the bottom of each boring log. Upon completion of drilling, the borings were backfilled with bentonite to satisfy WDNR regulations, and the soil samples were delivered to our laboratory for visual classification and limited geotechnical laboratory testing. The soils were visually classified by a geotechnical engineer using the Unified Soil Classification System (USCS). Borings B-17, B-26, and B-27 were dually classified by a Certified Soil Tester using the USDA classification system for *preliminary* stormwater infiltration analysis.

The final boring logs prepared by the engineer, including laboratory test results, along with a Soil Boring Location Exhibit and a description of the Unified Soil Classification System are presented in Appendix B.

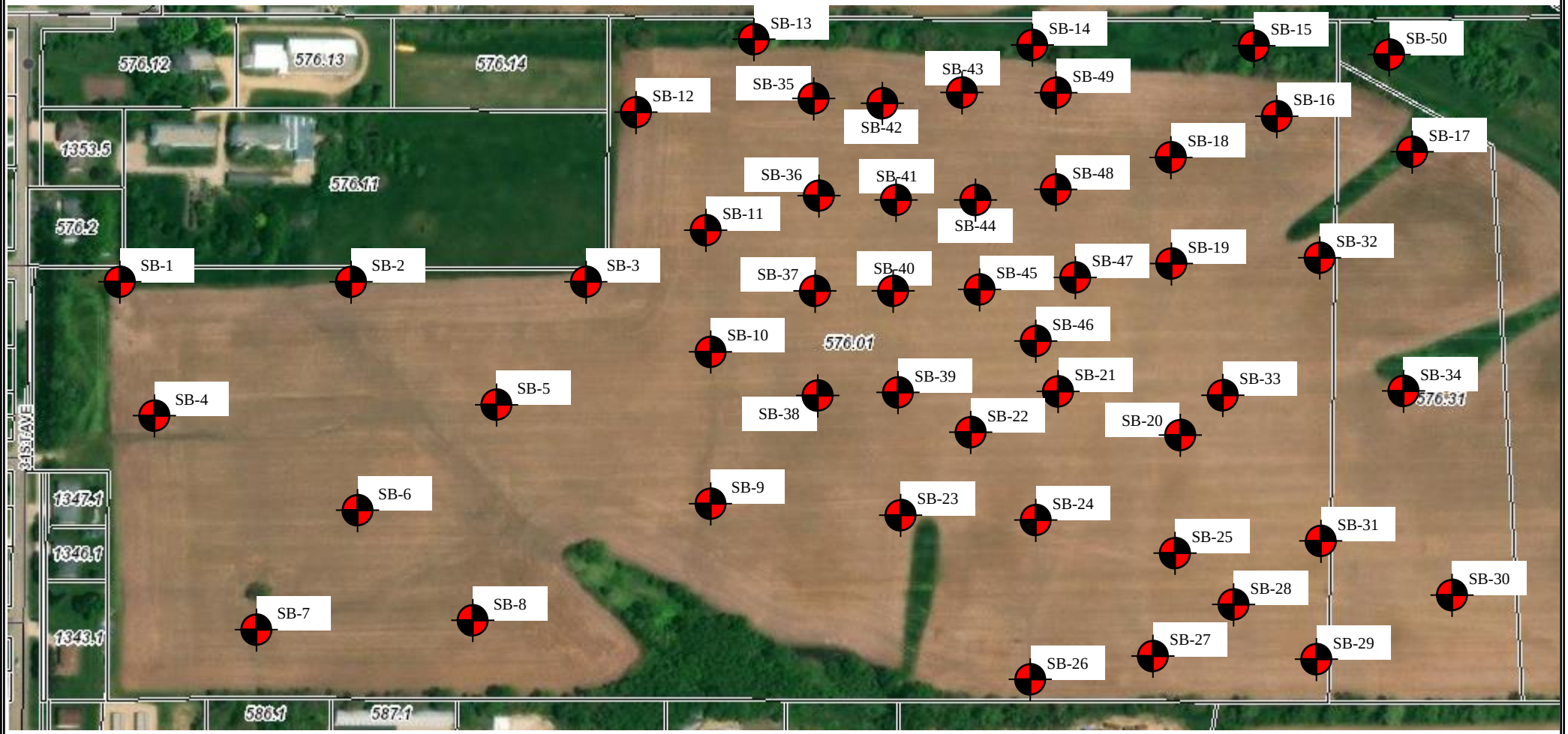
APPENDIX B

SOIL BORING LOCATION EXHIBIT
LOGS OF TEST BORINGS (58)
LOG OF TEST BORING-GENERAL NOTES
UNIFIED SOIL CLASSIFICATION SYSTEM

Legend

Denotes Soil Boring Location and Number

N



Notes

1. Borings were drilled by Soil Essentials (SE; under subcontract to CGC).
2. Boring locations are approximate.
3. Base map was obtained via Green County Online GIS.

Job No.: C23394 **Date:** 12/2023	**CGC, Inc.**	**SOIL BORING LOCATION EXHIBIT** **Monroe High School Campus** **31st Ave** **Monroe, WI**

Legend

Denotes Soil Boring Location and Number

N

Notes

1. Borings were drilled by Soil Essentials (SE; under subcontract to CGC).
2. Boring locations are approximate.
3. Base map was obtained via Green County Online GIS.

Job No.: C23394 **Date:** 12/2023	CGC, Inc.	**SOIL BORING LOCATION EXHIBIT** **Monroe High School Campus** **31st Ave** **Monroe, WI**

Legend

Denotes Soil Boring Location and Number

N

Notes

1. Borings were drilled by Soil Essentials (SE; under subcontract to CGC).
2. Boring locations are approximate.
3. Base map was obtained via Green County Online GIS.

Job No.: C23394	CGC, Inc.	**SOIL BORING LOCATION EXHIBIT** **Monroe High School Campus** **31st Ave** **Monroe, WI**
Date: 12/2023		

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **1**
Surface Elevation (ft) **1094.7**
Job No. **C23394**
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		14	M	8		Very Stiff, Brown Silty to Lean CLAY, Trace Sand, Trace to Little Gravel (CL-ML/CL)	(3.5-4.0)	13.8			
2		14	M	6			(2.0-2.5)				
					5						
3		13	M	9			(2.5-3.0)				
4		13	M	7			(2.0-2.5)				
					10						
5		14	M	100/2"		Very Dense, Brown Fine SAND, Some Silt, Trace Gravel, Interbedded Silt and Clay Seams (SM)					
					15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **11.9**

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

GENERAL NOTES

Start **11/2/23** End **11/2/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **2**
Surface Elevation (ft) **1071.7**
Job No. **C23394**
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
						14 ± in. TOPSOIL					
1		14	M	6		Very Stiff to Hard, Brown Lean CLAY, Trace Sand and Gravel (CL)	(4.0+)				
2		14	M	8			(3.5-4.0)				
					5						
3		12	M	29		Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
4		11	M	25							
					10						
5		11	M	22							
					15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **10.9**

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

GENERAL NOTES

Start **11/2/23** End **11/2/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **3**
Surface Elevation (ft) **1082.1**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		14	M	7		Very Stiff, Brown Lean CLAY, Little to Some Sand, Little Gravel (CL)	(2.0-2.5)	13.0			
2		14	M	7	5		(2.5-3.0)				
3		12	M	13		Loose to Medium Dense, Brown Fine to Medium SAND, Trace Clay, Some Silt and Gravel, Scattered Clay Pockets (SM)					
4		12	M	9	10						
5		14	M	13		Very Stiff/Medium Dense, Silty CLAY to SILT, Trace Sand and Gravel (CL-ML/ML)	(2.0-2.5)				
					15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **12.9**

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

GENERAL NOTES

Start **11/2/23** End **11/2/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **4**
Surface Elevation (ft) **1084.8**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		13	M	5		Very Stiff, Brown Lean CLAY, Trace Sand and Gravel, Scattered Silt Seams (CL)	(2.0-2.5)				
2		13	M	7	5	Very Stiff, Brownish Gray Silty to Lean CLAY, Trace Sand and Gravel (CL-ML/CL)	(2.5-3.0)				
3		4	M	18		Loose, Brown Fine to Medium SAND, Some Silt, Trace Gravel (SM)					
4		3	M	100/5"	10	Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
5		10	M	100/2"	15						
6		1	M	100/1"	20	End of Boring/Auger Refusal on Probable Bedrock at 18.9 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **12.9**

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

GENERAL NOTES

Start **11/2/23** End **11/2/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **5**
Surface Elevation (ft) **1060.1**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1		14	M	9		Hard, Brown Lean CLAY, Trace Sand and Gravel (CL)	(4.0+)				
2		14	M	6	5	Very Stiff, Brown Lean to Fat CLAY, Trace Sand, Little Gravel (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.5-3.0)				
3		6	M	32		Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
4		3	M	100/1"	10	End of Boring/Auger Refusal on Probable Bedrock at 9.9 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **7.9**

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

GENERAL NOTES

Start **11/2/23** End **11/2/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **6**
Surface Elevation (ft) **1070.5**
Job No. **C23394**
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
						12 ± in. TOPSOIL					
1		14	M	4		Very Stiff, Reddish Brown Lean to Fat CLAY, Trace Sand, Little Gravel (CL/CH)	(3.0-3.5)				
2		14	M	4	5	Loose, Brown SILT, Trace Sand and Gravel, Scattered Clay Seams (ML)					
3		14	M	11		Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Clay Pockets (SM; Probable Weathered Dolomite Bedrock)					
4		2	M	100/2"	10	End of Boring/Auger Refusal on Probable Bedrock at 9.2 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **6.9**

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

GENERAL NOTES

Start **11/2/23** End **11/2/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **7**
Surface Elevation (ft) **1081.8**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		14	M	5		Stiff to Very Stiff, Brown Lean CLAY, Trace Sand and Gravel (CL)	(1.5-2.0)				
2		14	M	6	5		(2.0-2.5)				
3		12	M	7		Stiff, Brown Silty to Lean CLAY, Trace Sand, Trace to Little Gravel, Scattered Cobbles (CL-ML/CL)	(1.0-1.5)				
4		14	M	7		Very Stiff, Reddish Brown Lean to Fat CLAY, Trace Sand, Little to Some Gravel (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.0-2.5)				
5		3	M	100/5"	10	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
					15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **11.1**

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

GENERAL NOTES

Start **11/2/23** End **11/2/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **8**
Surface Elevation (ft) **1064.1**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1		14	M	4		Very Stiff, Reddish Brown Lean to Fat CLAY, Trace Sand, Some Gravel (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.5-3.0)				
2		8	M	10	5	Loose to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt Seams (SM; Probable Weathered Dolomite Bedrock)					
3		7	M	70							
4		3	M	100/4"	10	End of Boring/Auger Refusal on Probable Bedrock at 9.2 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **8.0**

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

GENERAL NOTES

Start **11/2/23** End **11/2/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **9**
Surface Elevation (ft) **1049.3**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		14	M	6		Hard, Brown Lean CLAY, Trace Sand and Gravel, Interbedded Silt Seams (CL)	(4.0+)	18.4			
2		14	M	8	5	Loose, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Silt Seams (SM)					
3		8	M	11		Very Stiff, Reddish Brown Lean to Fat CLAY, Trace Sand, Some Gravel, Scattered Cobbles (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.0-2.5)				
4		10	M	31	10	Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
						End of Boring/Auger Refusal on Probable Bedrock at 11.3 ft					
					15	Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **9.4**

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

GENERAL NOTES

Start **11/2/23** End **11/2/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **10**
Surface Elevation (ft) **1070.4**
Job No. **C23394**
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
						9 ± in. TOPSOIL					
1		14	M	5		Very Stiff, Brown Lean CLAY, Trace to Little Sand, Trace Gravel (CL)	(2.0-2.5)	21.7	35	18	
2		12	M	9	5	Very Stiff to Hard, Brown Silty to Lean CLAY, Trace Sand, Little Gravel (CL-ML/CL)	(3.5-4.0+)				
3		12	M	24		Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt, Little to Some Gravel, Scattered Silt Pockets (SM; Probable Weathered Dolomite Bedrock)					
4		3	M	100/3"	10						
5		2	M	100/2"		End of Boring/Auger Refusal on Probable Bedrock at 13.9 ft					
					15	Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **11.1**

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

GENERAL NOTES

Start **10/30/23** End **10/30/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **11**
Surface Elevation (ft) **1088.2**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		14	M	9		Stiff to Hard, Brown Silty to Lean CLAY, Trace Sand and Gravel (CL-ML/CL)	(4.0+)	14.9			
2		14	M	4	5		(1.0-1.5)				
3		13	M	15		Medium Dense, Brown Fine to Medium SAND, Trace Clay, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
4		13	M	6	10	Loose, Brown (Mottled) SILT, Trace to Little Sand, Trace Gravel, Scattered Sand Pockets (ML)					
5		14	M	21	15	Very Stiff, Reddish Brown Lean to Fat CLAY, Trace Sand, Some Gravel, Scattered Cobbles (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.0)				
6		7	M	14	20		(2.0-2.5)				
					25	End of Boring/Auger Refusal on Probable Bedrock at 21.9 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **17.1**

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

GENERAL NOTES

Start **10/30/23** End **10/30/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **12**
Surface Elevation (ft) **1100.3**
Job No. **C23394**
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
						7 ± in. TOPSOIL					
1		14	M	8		Loose, Reddish Brown Fine to Coarse Clayey SAND, Trace Gravel (SC)					
2		14	M	8	5	Loose to Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Silt Seams and Cobbles and Boulders (SM)					
3		12	M	34							
4		14	M	14	10	Medium Dense, Brown SILT, Trace to Little Sand, Trace Gravel (ML)					
5		12	M	9	15	Very Stiff, Reddish Brown Lean to Fat CLAY, Trace Sand and Gravel, Interbedded Silt Seams (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.5)				
6		3	M	100/3"	20	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
						End of Boring/Auger Refusal on Probable Bedrock at 19.5 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **17.7**

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

GENERAL NOTES

Start **10/27/23** End **10/27/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **13**
Surface Elevation (ft) **1088.9**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		12	M	15		Hard, Brown Lean CLAY, Little to Some Sand and Gravel (CL)	(4.0+)	13.6			
2		14	M	7	5		(4.0+)				
3		14	M	8			(4.0+)				
4		13	M	20	10	Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt Pockets (SM; Probable Weathered Dolomite Bedrock)					
5		2	M	100/2"	15						
						End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **9.3**

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

GENERAL NOTES

Start **11/6/23** End **11/6/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **14**
Surface Elevation (ft) **1048.1**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		7	M	100/2"		Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
2		10	M	100/3"		Scattered Silt Pockets in Sample 2.					
					5						
3		2	M	100/4"							
						End of Boring/Auger Refusal on Probable Bedrock at 6.9 ft					
						Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					10						
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **5.9**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **15**
Surface Elevation (ft) **1034.3**
Job No. **C23394**
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
						12 ± in. TOPSOIL					
1		8	M	100/3"		Hard, Brown Lean CLAY, Trace Sand and Gravel (CL)	(4.0+)				
						Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt Seams (SM; Probable Weathered Dolomite Bedrock)					
2		5	M	100/4"	5						
3		6	M	100/2"							
4		1	M	100/1"		End of Boring/Auger Refusal on Probable Bedrock at 8.7 ft					
					10	Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **7.0**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **16**
Surface Elevation (ft) **1042.8**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		12	M	14		Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
2		10	M	100/3"	5	Scattered Silt Pockets in Sample 1.					
3		4	M	100/4"							
4		2	M	100/4"	10	End of Boring/Auger Refusal on Probable Bedrock at 8.9 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **6.7**

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

GENERAL NOTES

Start **11/6/23** End **11/6/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **17**
Surface Elevation (ft) **1019.2**
Job No. **C23394**
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
						14 ± in. TOPSOIL					
1		14	M	6		Very Stiff to Hard, Brown Lean CLAY, Trace Sand and Gravel (CL)	(4.0+)				
2		14	M	5	5		(4.0)				
3		14	M	6		Loose to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt Pockets (SM; Probable Weathered Dolomite Bedrock)					
4		2	M	74	10						
5		2	M	100/2"							
					15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **11.7**

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

GENERAL NOTES

Start **11/6/23** End **11/6/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **18**
Surface Elevation (ft) **1057.3**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		12	M	23		Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
2		2	M	28	5						
3		2	M	100/3"							
4		1	M	100/1"		End of Boring/Auger Refusal on Probable Bedrock at 8.7 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					10						
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **7.1**

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

GENERAL NOTES

Start **11/6/23** End **11/6/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **19**
Surface Elevation (ft) **1071.1**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		14	M	11		Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel (SM)					
2		13	M	4	5	Very Stiff, Reddish Brown Lean CLAY, Trace to Little Sand, Trace Gravel (CL)	(2.5-3.0)	21.2	37	21	
3		10	M	9		Loose to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
4		6	M	10	10						
5		2	M	100/3"							
					15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **10.7**

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

GENERAL NOTES

Start **11/6/23** End **11/6/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Monroe High School**

Location: **Monroe, WI**

Boring No. **20**
Surface Elevation (ft) **1080.0**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1		16	M	6		Very Stiff, Brown Silty to Lean CLAY, Little to Some Sand, Trace to Little Gravel (CL-ML/CL)	(2.0-2.5)				
2		14	M	11	5	Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
3		13	M	15		Medium Dense, Brown SILT, Trace Sand and Gravel (ML)					
4		6	M	100/4"	10	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt Seams (SM; Probable Weathered Dolomite Bedrock)					
5		2	M	100/2"	15	End of Boring/Auger Refusal on Probable Bedrock at 13.8 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **10.9**

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

GENERAL NOTES

Start **10/31/23** End **10/31/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **21**
Surface Elevation (ft) **1078.5**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		14	M	8		Very Stiff, Brown Lean to Fat CLAY, Little to Some Sand, Little Gravel (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(3.0-3.5)	17.6			
2		13	M	8	5	Loose to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
3		14	M	11							
4		13	M	8	10	Scattered Clay Pockets in Sample 4.	(1.0-2.0)				
5		2	M	100/3"	15	End of Boring/Auger Refusal on Probable Bedrock at 14.0 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **12.1**

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

GENERAL NOTES

Start **10/31/23** End **10/31/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **22**
Surface Elevation (ft) **1072.0**
Job No. **C23394**
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		14	M	7		Very Stiff, Brown Lean CLAY, Trace Sand and Gravel (CL)	(2.5-3.5)	20.2			
2		13	M	6	5	Very Stiff, Brown Lean to Fat CLAY, Trace Sand, Trace to Little Gravel (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(3.5-4.0)				
3		13	M	100/3"			(2.5-3.0)				
4		2	M	100/2"	10	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
						End of Boring/Auger Refusal on Probable Bedrock at 9.0 ft					
						Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **7.1**

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

GENERAL NOTES

Start **10/31/23** End **10/31/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **23**
Surface Elevation (ft) **1056.2**
Job No. **C23394**
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		14	M	7		Very Stiff, Brown Lean to Fat CLAY, Trace Sand, Little Gravel (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(3.0-4.0)	19.0			
2		12	M	27	5	Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
3		8	M	36							
4		3	M	100/1"							
					10	End of Boring/Auger Refusal on Probable Bedrock at 9.1 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **6.9**

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

GENERAL NOTES

Start **11/2/23** End **11/2/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **24**
Surface Elevation (ft) **1056.7**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		12	M	5		Loose, Dark Brown Clayey SAND, Trace Gravel, Scattered Clay Pockets (SC)					
2		6	M	11	5	Very Stiff, Brown Lean CLAY, Trace Sand, Little Gravel (CL)	(2.0-2.5)				
3		12	M	6		Very Stiff, Reddish Brown Lean to Fat CLAY, Trace Sand, Little Gravel (CL/CH)	(3.0-3.5)				
4		14	M	6	10	Stiff to Very Stiff, Brown Silty to Lean CLAY, Trace Sand and Gravel, Scattered Silt Seams (CL-ML/CL)	(1.0-1.5)				
5		14	M	8	15		(2.0-2.5)				
						End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **12.1**

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

GENERAL NOTES

Start **11/3/23** End **11/3/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **25**
Surface Elevation (ft) **1062.7**
Job No. **C23394**
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
						9 ± in. TOPSOIL					
1	■	14	M	4		Loose to Medium Dense, Brown Fine SAND, Some Silt, Little to Some Gravel, Scattered Cobbles and Boulders (SM)					
2	■	12	M	16	5						
3	■	14	M	11		Very Stiff, Reddish Brown Lean to Fat CLAY, Trace Sand, Little to Some Gravel (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.5-2.75)				
4	■	12	M	7	10		(3.0-3.5)				
5	■	12	M	28		Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
					15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **10.2**

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

GENERAL NOTES

Start **11/3/23** End **11/3/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **26**
Surface Elevation (ft) **1033.0**
Job No. **C23394**
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		14	M	9		Loose, Dark Brown SILT, Little Sand, Trace Gravel, Scattered Clay Pockets (ML)					
2		14	M	9	5	Very Stiff, Brown Silty to Lean CLAY, Trace Sand and Gravel (CL-ML/CL)	(2.0-2.25)				
3		1	M	100/1"		Stiff, Brown Lean to Fat CLAY, Little Sand and Gravel, Scattered Cobbles (CL/CH; Possible Highly Weathered Dolomite Bedrock)					
4		13	M	9	10	Pushed a Cobble in Sample 3.	(1.5-1.75)				
5		13	M	37	15	Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
						End of Boring at 15 ft					
						Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **7.8**

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

GENERAL NOTES

Start **11/3/23** End **11/3/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **27**
Surface Elevation (ft) **1047.9**
Job No. **C23394**
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		14	M	4		Stiff, Brown Lean CLAY, Little Sand, Trace Gravel, Scattered Cobbles (CL)	(1.0-1.25)				
2		12	M	12	5		(1.0)				
3		12	M	8		Stiff to Very Stiff, Brown Lean to Fat CLAY, Trace Sand, Little to Some Gravel, Scattered Cobbles (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(1.5-2.0)				
4		14	M	9	10		(2.5-3.0)				
5		12	M	7			(2.0-2.5)				
					15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **11.1**

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

GENERAL NOTES

Start **11/3/23** End **11/3/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **28**
Surface Elevation (ft) **1057.9**
Job No. **C23394**
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		14	M	10		Loose, Brown Fine to Coarse Clayey SAND, Trace Gravel, Scattered Clay Pockets (SC)					
2		14	M	8	5	Very Stiff, Reddish Brown Lean to Fat CLAY, Some Gravel, Scattered Cobbles (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.0-2.5)				
3		13	M	8			(2.5-3.5)				
4		3	M	17	10		(2.5)				
5		2	M	100/2"	15	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
						End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **10.9**

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

GENERAL NOTES

Start **11/3/23** End **11/3/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **29**
Surface Elevation (ft) **1051.9**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		14	M	5		Loose/Stiff, Brown Fine to Coarse Clayey SAND to Sandy Lean CLAY (SC/CL)	(1.5-2.0)				
2		14	M	7	5	Loose, Brown Fine SAND, Some Silt, Trace Gravel, Interbedded Silt Seams (SM)					
3		14	M	6		Very Stiff, Brown Lean to Fat CLAY, Trace Sand, Little to Some Gravel, Scattered Cobbles (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.0-2.5)				
4		12	M	9	10		(3.5-4.0)				
5		14	M	10			(2.0-3.0)				
					15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **12.2**

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

GENERAL NOTES

Start **11/3/23** End **11/3/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **30**
Surface Elevation (ft) **1068.0**
Job No. **C23394**
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
						6 ± in. TOPSOIL					
1		14	M	12		Very Stiff to Hard, Reddish Brown Lean to Fat CLAY, Trace to Little Sand, Little to Some Gravel (CL/CH)	(3.5-4.0+)	17.5	44	20	
2		12	M	5	5	Very Stiff, Brown Silty to Lean CLAY, Little Sand, Scattered Silt Seams (CL-ML/CL)	(2.0-2.5)				
3		6	M	100/5"		Loose to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
4		8	M	8	10	Scattered Clay Pockets in Sample 4.	(1.0-1.5)				
						Scattered Silt Pockets in Sample 5.					
5		10	M	100/2"	15						
						End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **10.9**

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

GENERAL NOTES

Start **11/6/23** End **11/6/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **31**
Surface Elevation (ft) **1069.1**
Job No. **C23394**
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
						9 ± in. TOPSOIL					
1		14	M	5		Very Stiff, Reddish Brown Lean to Fat CLAY, Trace to Little Sand, Trace Gravel (CL/CH)	(2.5-3.0)				
2		14	M	5	5	Medium Stiff to Stiff, Brown Lean CLAY, Trace Sand and Gravel (CL)	(0.5-1.25)				
3		1	M	18		Very Stiff to Hard, Red Lean to Fat CLAY, Trace Sand, Some Gravel, Scattered Cobbles and Boulders (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(4.0+)				
4		10	M	10	10		(2.0-3.0)				
5		2	M	100/2"	15	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
						End of Boring/Auger Refusal on Probable Bedrock at 15.1 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **12.2**

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

GENERAL NOTES

Start **11/1/23** End **11/1/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **32**
Surface Elevation (ft) **1046.4**
Job No. **C23394**
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
						7 ± in. TOPSOIL					
1		14	M	8		Loose to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt and Clay Seams (SM; Probable Weathered Dolomite Bedrock)					
2		12	M	16	5						
3		4	M	100/5"							
						End of Boring/Auger Refusal on Probable Bedrock at 7.1 ft					
						Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					10						
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **6.0**

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

GENERAL NOTES

Start **11/6/23** End **11/6/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Monroe High School**

Location: **Monroe, WI**

Boring No. **33**
Surface Elevation (ft) **1074.8**
Job No. **C23394**
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		14	M	7		Very Stiff, Brown Sandy Lean CLAY, Trace to Little Gravel (CL)	(2.0-2.5)				
2		14	M	7	5	Stiff/Loose, Brown Silty CLAY to SILT, Trace Sand, Little Gravel (CL-ML/ML)	(1.0-2.0)				
3		12	M	10		Loose to Medium Dense, Brown Fine SAND, Some Silt, Trace to Little Gravel, Scattered Cobbles and Boulders (SM)					
4		12	M	17	10						
5		14	M	9	15	Very Stiff, Brown Lean to Fat CLAY, Trace Sand and Gravel (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(3.5-4.0)				
6		12	M	31	20	Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
7		6	M	62	25						
						End of Boring at 25 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **20.4**

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

GENERAL NOTES

Start **10/31/23** End **10/31/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **34**
Surface Elevation (ft) **1044.0**
Job No. **C23394**
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
						14 ± in. TOPSOIL					
1		14	M	9		Loose to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
2		12	M	12	5	Scattered Clay and Silt Pockets in Sample 1.					
3		12	M	43							
4		3	M	100/3"	10						
						End of Boring/Auger Refusal on Probable Bedrock at 11.3 ft					
						Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **8.1**

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

GENERAL NOTES

Start **11/6/23** End **11/6/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **35**
Surface Elevation (ft) **1084.9**
Job No. **C23394**
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
						11 ± in. TOPSOIL					
1		14	M	8		Stiff to Hard, Brown Lean CLAY, Trace Sand, Trace to Little Gravel (CL)	(4.0+)				
2		13	M	6		Scattered Silt Seams and Pockets in Samples 2 and 3.	(2.5-3.0)				
3		14	M	8	5		(1.5-2.0)				
4		10	M	9			(2.5-3.0)				
5		12	M	14	10	Very Stiff, Reddish Brown Lean to Fat CLAY, Trace Sand, Some Gravel, Scattered Cobbles (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.5)				
						Pushed a Cobble in Sample 6.					
6		2	M	100/2"	15	End of Boring/Auger Refusal on Probable Bedrock at 18.8 ft					
					20	Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **14.6**

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

GENERAL NOTES

Start **10/27/23** End **10/27/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **36**
Surface Elevation (ft) **1092.1**
Job No. **C23394**
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
						7 ± in. TOPSOIL					
1		14	M	9		Stiff to Hard, Reddish Brown Lean to Fat CLAY, Little Sand, Some Gravel, Scattered Cobbles (CL/CH)	(4.0+)				
2		14	M	5	5		(1.0-1.5)				
3		13	M	9			(1.5-2.0)				
4		14	M	2	10	Medium Stiff/Very Loose, Brown Silty CLAY to SILT, Trace Sand and Gravel (CL-ML/ML)	(0.5-1.0)				
5		2	M	100/2"	15	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
						End of Boring/Auger Refusal on Probable Bedrock at 16.7 ft					
					20	Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **14.7**

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

GENERAL NOTES

Start **10/27/23** End **10/27/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Monroe High School**

Location: **Monroe, WI**

Boring No. **37**
Surface Elevation (ft) **1085.1**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1		14	M	8		Very Stiff, Reddish Brown Lean to Fat CLAY, Little Sand, Trace Gravel (CL/CH)	(3.5-4.0)				
2		12	M	16	5	Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
3		13	M	8		Loose, Reddish Brown Fine to Medium Clayey SAND, Little Gravel (SC)					
4		6	M	6	10	Stiff, Brown Silty to Lean CLAY, Trace Sand, Little Gravel, Scattered Cobbles (CL-ML/CL)	(1.0-1.5)				
5		12	M	23	15	Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
6		2	M	100/2"	20	End of Boring/Auger Refusal on Probable Bedrock at 18.9 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **15.1**

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

GENERAL NOTES

Start **10/30/23** End **10/30/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Monroe High School**

Location: **Monroe, WI**

Boring No. **38**
Surface Elevation (ft) **1075.5**
Job No. **C23394**
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
						6 ± in. TOPSOIL					
1		14	M	22		Hard, Brown Lean CLAY, Trace Sand, Some Gravel, Scattered Cobbles (CL)	(4.0+)				
2		13	M	14	5	Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
3		12	M	17		Very Stiff to Hard, Reddish Brown Fat CLAY, Trace Sand, Some Gravel, Scattered Cobbles (CH; Probable Highly Weathered Dolomite Bedrock)	(3.5-4.0)				
4		12	M	13	10		(4.0+)	31.2	72	37	
5		2	M	100/4"			(4.0+)				
					15	End of Boring/Auger Refusal on Probable Bedrock at 14.1 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **11.9**

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

GENERAL NOTES

Start **10/30/23** End **10/30/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **39**
Surface Elevation (ft) **1076.4**
Job No. **C23394**
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
						12 ± in. TOPSOIL					
1		13	M	11		Hard, Brown Lean CLAY, Some Sand, Little to Some Gravel (CL)	(4.0+)				
2		12	M	10	5	Loose, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt Pockets (SM)					
3		6	M	19		Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
4		4	M	27	10						
						End of Boring/Auger Refusal on Probable Bedrock at 10.9 ft					
						Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **8.8**

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

GENERAL NOTES

Start **10/30/23** End **10/30/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Monroe High School**

Location: **Monroe, WI**

Boring No. **40**
Surface Elevation (ft) **1088.4**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1		13	M	8		Stiff, Brown Lean CLAY, Trace to Little Sand, Little Gravel, Scattered Sand Pockets (CL)	(1.5-2.0)				
2		3	M	17	5	Scattered Cobbles in Sample 2.	(1.0)				
3		14	M	11		Loose to Medium Dense, Brown Fine to Medium SAND, Trace Clay, Some Silt, Little to Some Gravel (SM)					
4		14	M	7	10						
5		10	M	30		Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)	(1.0-1.5)				
					15	Scattered Clay Pockets in Sample 5.					
6		2	M	100/2"		End of Boring/Auger Refusal on Probable Bedrock at 18.8 ft					
					20	Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **12.9**

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

GENERAL NOTES

Start **10/30/23** End **10/30/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **41**
Surface Elevation (ft) **1083.7**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		14	M	11		Hard, Brown Lean to Fat CLAY, Little to Some Sand, Some Gravel (CL/CH)	(4.0+)				
2		14	M	8	5	Loose, Brown Clayey SAND, Trace Gravel (SC)					
3		8	M	9		Stiff, Brown Lean CLAY, Trace Sand and Gravel, Scattered Sand Pockets and Seams (CL)	(1.0-1.5)				
4		6	M	14	10	Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Clay Pockets (SM; Probable Weathered Dolomite Bedrock)					
5		3	M	14	15						
6		2	M	100/2"	20	End of Boring/Auger Refusal on Probable Bedrock at 18.9 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **15.9**

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

GENERAL NOTES

Start **10/27/23** End **10/27/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Monroe High School**

Location: **Monroe, WI**

Boring No. **42**
Surface Elevation (ft) **1076.2**
Job No. **C23394**
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		14	M	9		Loose, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
2		0	M	8	5	Pushed a Cobble in Sample 2 - No Recovery.					
3		13	M	11		Very Stiff, Brownish Gray Silty to Lean CLAY, Trace Sand and Gravel, Interbedded Silt Seams (CL-ML/CL)	(2.0-2.25)				
4		1	M	32	10	Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
5		7	M	100/3"	15						
6		2	M	100/2"	20	End of Boring/Auger Refusal on Probable Bedrock at 18.8 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **15.2**

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

GENERAL NOTES

Start **11/1/23** End **11/1/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **43**
Surface Elevation (ft) **1062.3**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1		14	M	7		Hard, Brown Lean CLAY, Trace to Little Sand, Trace Gravel (CL)	(4.0+)				
2		12	M	100/2"		Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
					5	End of Boring/Auger Refusal on Probable Bedrock at 5.4 ft					
						Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					10	*A Second Boring was Performed 10 ft West with a Similar Auger Refusal Depth.*					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **3.1**

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

GENERAL NOTES

Start **11/1/23** End **11/1/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **44**
Surface Elevation (ft) **1073.4**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1		14	M	10		Stiff to Very Stiff, Brown Lean CLAY, Trace Sand and Gravel (CL)	(3.0-3.5)				
2		14	M	9	5		(2.5-3.5)				
3		13	M	7			(1.5-2.0)				
4		14	M	9	10	Loose, Brown to Reddish Brown SILT, Trace Sand and Gravel (ML)					
5		12	M	40	15	Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
						End of Boring/Auger Refusal on Probable Bedrock at 16.9 ft					
					20	Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **12.1**

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

GENERAL NOTES

Start **11/1/23** End **11/1/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **45**
Surface Elevation (ft) **1085.2**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1	■	16	M	8		Very Stiff to Hard, Reddish Brown Lean to Fat CLAY, Trace Sand, Trace to Little Gravel (CL/CH)	(4.0+)				
2	■	8	M	9	5		(2.5-3.5)				
3	■	12	M	7		Very Stiff, Reddish Brown Fat CLAY, Trace Sand, Little Gravel (CH; Probable Highly Weathered Dolomite Bedrock)	(2.5-3.0)	34.3	75	37	
4	■	12	M	6	10	Stiff/Loose, Reddish Brown Sandy Fat CLAY to Clayey SAND, Trace Gravel (CH/SC; Probable Weathered Dolomite Bedrock)	(1.5-2.0)				
5	■	6	M	8	15	Loose to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt Pockets (SM; Probable Weathered Dolomite Bedrock)					
6	■	1	M	100/1"	20	End of Boring/Auger Refusal on Probable Bedrock at 18.7 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **16.1**

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

GENERAL NOTES

Start **10/26/23** End **10/26/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **46**
Surface Elevation (ft) **1084.6**
Job No. **C23394**
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
						7 ± in. TOPSOIL					
1		14	M	7		Loose, Brown Fine to Medium SAND, Some Silt and Gravel (SM)					
2		12	M	7	5	Loose, Brown Fine to Coarse Clayey SAND, Trace Gravel, Scattered Clay Pockets (SC)					
3		0	M	6		Stiff, Brown Lean to Fat CLAY, Trace Sand and Gravel (CL/CH)	(1.5-2.0)				
						No Recovery - Sample Collected from Auger Cuttings.					
4		6	M	8	10	Stiff, Brown Silty to Lean CLAY, Trace Sand and Gravel, Scattered Sand Pockets (CL-ML/CL; Possible Weathered Dolomite Bedrock)	(1.5-2.0)				
5		2	M	100/2"	15	End of Boring/Auger Refusal on Probable Bedrock at 13.8 ft					
						Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **11.9**

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

GENERAL NOTES

Start **10/26/23** End **10/26/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **47**
Surface Elevation (ft) **1081.3**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1		14	M	14		Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
2		14	M	11	5						
3		13	M	15							
4		6	M	100/1"	10						
5		1	M	100/1"		End of Boring/Auger Refusal on Probable Bedrock at 13.9 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **12.0**

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

GENERAL NOTES

Start **10/26/23** End **10/26/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **48**
Surface Elevation (ft) **1066.7**
Job No. **C23394**
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
						10 ± in. TOPSOIL					
1		13	M	7		Very Stiff, Brown Lean to Fat CLAY, Little to Some Sand, Little Gravel (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(2.0-2.5)				
2		12	M	10			(2.0-3.0)	14.6			
					5						
3		12	M	13		Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt Seams (SM; Probable Weathered Dolomite Bedrock)					
4		5	M	100/5"							
					10	End of Boring/Auger Refusal on Probable Bedrock at 10.1 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **8.8**

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

GENERAL NOTES

Start **11/1/23** End **11/1/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Monroe High School**

Location: **Monroe, WI**

Boring No. **49**
Surface Elevation (ft) **1050.1**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1		14	M	7		Very Stiff, Brown Lean CLAY, Trace to Little Sand and Gravel (CL)	(4.0)				
2		14	M	9	5		(2.5-3.5)				
3		14	M	9		Loose, Brown Fine SAND, Some Silt, Trace Gravel (SM)					
4		13	M	8	10	Loose to Medium Dense, Brown SILT, Trace Sand and Gravel (ML) Scattered Clay Seams in Sample 4.					
5		14	M	9	15						
6		13	M	13	20	More Gravel and Scattered Sand Pockets in Sample 6.					
7		8	M	100/2"	25	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
					30	End of Boring at 25 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **19.1**

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

GENERAL NOTES

Start **11/1/23** End **11/1/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **50**
Surface Elevation (ft) **1016.6**
Job No. **C23394**
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
					0	10 ± in. TOPSOIL					
1		14	M	7		Loose, Dark Brown SILT, Trace Sand and Gravel (ML)		10.8			
2		13	M	13	5	Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt Pockets (SM; Probable Weathered Dolomite Bedrock)					
3		7	M	24							
4		3	M	100/4"	10						
5		2	M	100/3"	15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **11.1**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **51**
Surface Elevation (ft) **999.6**
Job No. **C23394**
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		14	M	5		Loose, Dark Brown SILT, Trace Sand and Gravel (ML)					
2		14	M	5	5	Very Stiff, Dark Brown to Black Lean CLAY, Trace Organics, Sand, and Gravel (CL)	(2.0-2.5)	28.2			3.1
3		3	M	100/5"		Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
4		1	M/W	100/2"	10	End of Boring/Auger Refusal on Probable Bedrock at 8.9 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **7.1**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **52**
Surface Elevation (ft) **1004.9**
Job No. **C23394**
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		14	M	4		Very Stiff, Brown Lean CLAY, Trace Sand and Gravel (CL)	(2.0-2.5)	23.1			
2		14	M	3	5	Very Loose, Brown Fine SAND, Some Silt, Trace Gravel, Scattered Silt and Clay Pockets (SM)					
3		13	M	9		Loose, Brown SILT, Trace Sand and Gravel (ML)					
4		13	M	8	10	Scattered Clay Seams in Sample 4.					
5		5	M	100/5"	15	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
						End of Boring at 15 ft					
					20	Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **11.9**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **53**
Surface Elevation (ft) **996.6**
Job No. **C23394**
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
						4 ± in. TOPSOIL					
1		13	M	25		Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
2		12	M	43	5						
3		12	M	34							
4		10	M	38	10						
5		8	M	42	15						
						End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **10.3**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **54**
Surface Elevation (ft) **986.8**
Job No. **C23394**
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
						4 ± in. TOPSOIL					
1		14	M	29		Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Clay Pockets (SM; Probable Weathered Dolomite Bedrock)					
2		12	M	19	5						
3		12	M	100/2"							
4		2	M	100/5"		End of Boring/Auger Refusal on Probable Bedrock at 8.9 ft					
					10	Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **7.1**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **55**
Surface Elevation (ft) **979.1**
Job No. **C23394**
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
						2 ± in. TOPSOIL					
1		12	M	26		Medium Dense to Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
2		1	M	100/4"		End of Boring/Auger Refusal on Probable Bedrock at 3.8 ft					
					5	Borehole Backfilled with Bentonite Chips and Soil Cuttings					
						A Second Boring was Performed 10 ft South with a Similar Auger Refusal Depth.					
					10						
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **2.0**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **56**
Surface Elevation (ft) **950 ±**
Job No. **C23394**
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
						18 ± in. TOPSOIL					
1		16	M/W	3		Very Soft, Brown Lean CLAY, Trace Sand and Gravel (CL)	(<0.25)	31.0			
2		8	W	20		Medium Dense to Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
					5						
3		8	W	25							
4		6	W	31							
					10						
						End of Boring/Auger Refusal on Probable Bedrock at 11.4 ft					
						Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **3.5'** Upon Completion of Drilling _____
Time After Drilling _____
Depth to Water **4.4** ▼
Depth to Cave in **6.7**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **57**
Surface Elevation (ft) **952.4**
Job No. **C23394**
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
						6 ± in. TOPSOIL					
1		16	M	5		Hard, Brown Lean CLAY, Trace Sand and Gravel (CL)	(4.0+)	18.3			
2		13	M	4	5	Stiff, Brown/Gray (Mottled) Lean to Fat CLAY, Trace Sand and Gravel (CL/CH; Possible Highly Weathered Dolomite Bedrock)	(1.0-1.5)				
3		10	M/W	9		Loose to Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Silt Pockets (SM; Probable Weathered Dolomite Bedrock)					
4		10	W	18	10						
5		6	W	16	15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **8.5'** Upon Completion of Drilling _____
Time After Drilling _____
Depth to Water _____ **6.4** ▼
Depth to Cave in _____ **8.7**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Monroe High School**

Location **Monroe, WI**

Boring No. **58**
Surface Elevation (ft) **958.1**
Job No. **C23394**
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
						8 ± in. TOPSOIL					
1	■	14	M	6		Very Stiff to Hard, Brown Lean CLAY, Trace Sand and Gravel (CL)	(4.0+)	19.4			
2	■	13	M	5	5		(2.5-3.0)				
3	■	10	M	15		Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM; Probable Weathered Dolomite Bedrock)					
4	■	11	M	20	10						
5	■	6	M	23							
					15	End of Boring at 15 ft Borehole Backfilled with Bentonite Chips and Soil Cuttings					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in **7.9**

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

GENERAL NOTES

Start **11/7/23** End **11/7/23**
Driller **SE** Chief **Tim** Rig **Geoprobe**
Logger **Tim** Editor **ELC** **7822DT**
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

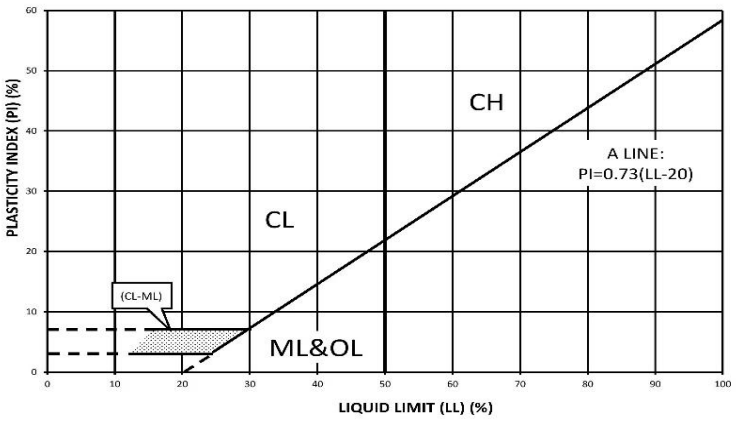
LABORATORY CLASSIFICATION CRITERIA

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 C

DOCUMENT QUALIFICATIONS

APPENDIX C
DOCUMENT QUALIFICATIONS

I. GENERAL RECOMMENDATIONS/LIMITATIONS

CGC, Inc. should be provided the opportunity for a general review of the final design and specifications to confirm that earthwork and foundation requirements have been properly interpreted in the design and specifications. CGC should be retained to provide soil engineering services during excavation and subgrade preparation. This will allow us to observe that construction proceeds in compliance with the design concepts, specifications and recommendations, and also will allow design changes to be made in the event that subsurface conditions differ from those anticipated prior to the start of construction. CGC does not assume responsibility for compliance with the recommendations in this report unless we are retained to provide construction testing and observation services.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices and no other warranties are expressed or implied. The opinions and recommendations submitted in this report are based on interpretation of the subsurface information revealed by the test borings indicated on the location plan. The report does not reflect potential variations in subsurface conditions between or beyond these borings. Therefore, variations in soil conditions can be expected between the boring locations and fluctuations of groundwater levels may occur with time. The nature and extent of the variations may not become evident until construction.

II. IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes. While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one - not even you* - should apply the report for any purpose or project except the one originally contemplated.

READ THE FULL REPORT

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report* that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes - even minor ones - and request an assessment of their impact. *CGC cannot accept responsibility or liability for problems that occur because our reports do not consider developments of which we were not informed.*

SUBSURFACE CONDITIONS CAN CHANGE

A geotechnical engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

MOST GEOTECHNICAL FINDINGS ARE PROFESSIONAL OPINION

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgement to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ - sometimes significantly - from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most

effective method of managing the risks associated with unanticipated conditions.

A REPORT'S RECOMMENDATIONS ARE NOT FINAL

Do not over-rely on the confirmation-dependent recommendations included in your report. *Those confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgement and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *CGC cannot assume responsibility or liability for the report's confirmation-dependent recommendations if we do not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical engineering report. Confront that risk by having CGC participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

DO NOT REDRAW THE ENGINEER'S LOGS

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

GIVE CONSTRUCTORS A COMPLETE REPORT AND GUIDANCE

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

READ RESPONSIBILITY PROVISIONS CLOSELY

Some clients, design professionals, and constructors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineer's responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

ENVIRONMENTAL CONCERNS ARE NOT COVERED

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

OBTAIN PROFESSIONAL ASSISTANCE TO DEAL WITH MOLD

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

RELY ON YOUR GEOTECHNICAL ENGINEER FOR ADDITIONAL ASSISTANCE

Membership in the Geotechnical Business Council (GBC) of Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with CGC, a member of GBC, for more information.

Modified and reprinted with permission from:

Geotechnical Business Council
of the Geoprofessional Business Association
8811 Colesville Road, Suite G 106
Silver Spring, MD 20910

APPENDIX D

RECOMMENDED COMPACTED FILL SPECIFICATIONS

APPENDIX D

CGC, INC.

RECOMMENDED COMPACTED FILL SPECIFICATIONS

General Fill Materials

Proposed fill shall contain no vegetation, roots, topsoil, peat, ash, wood or any other non-soil material which by decomposition might cause settlement. Also, fill shall never be placed while frozen or on frozen surfaces. Rock, stone or broken concrete greater than 6 in. in the largest dimension shall not be placed within 10 ft of the building area. Fill used greater than 10 ft beyond the building limits shall not contain rock, boulders or concrete pieces greater than a 2 sq ft area and shall not be placed within the final 2 ft of finish subgrade or in designated utility construction areas. Fill containing rock, boulders or concrete pieces should include sufficient finer material to fill voids among the larger fragments.

Special Fill Materials

In certain cases, special fill materials may be required for specific purposes, such as stabilizing subgrades, backfilling undercut excavations or filling behind retaining walls. For reference, WisDOT gradation specifications for various types of granular fill are attached in Table 1.

Placement Method

The approved fill shall be placed, spread and leveled in layers generally not exceeding 10 in. in thickness before compaction. The fill shall be placed at moisture content capable of achieving the desired compaction level. For clay soils or granular soils containing an appreciable amount of cohesive fines, moisture conditioning will likely be required.

It is the Contractor's responsibility to provide all necessary compaction equipment and other grading equipment that may be required to attain the specified compaction. Hand-guided vibratory or tamping compactors will be required whenever fill is placed adjacent to walls, footings, columns or in confined areas.

Compaction Specifications

Maximum dry density and optimum moisture content of the fill soil shall be determined in accordance with modified Proctor methods (ASTM D1557). The recommended field compaction as a percentage of the maximum dry density is shown in Table 2. Note that these compaction guidelines would generally not apply to coarse gravel/stone fill. Instead, a method specification would apply (e.g., compact in thin lifts with a vibratory compactor until no further consolidation is evident).

Testing Procedures

Representative samples of proposed fill shall be submitted to CGC, Inc. for optimum moisture-maximum density determination (ASTM D1557) prior to the start of fill placement. The sample size should be approximately 50 lb.

CGC, Inc. shall be retained to perform field density tests to determine the level of compaction being achieved in the fill. The tests shall generally be conducted on each lift at the beginning of fill placement and at a frequency mutually agreed upon by the project team for the remainder of the project.

Table 1
Gradation of Special Fill Materials

Material	WisDOT Section 311	WisDOT Section 312	WisDOT Section 305			WisDOT Section 209		WisDOT Section 210
	Breaker Run	Select Crushed Material	3-in. Dense Graded Base	1 1/4-in. Dense Graded Base	3/4-in. Dense Graded Base	Grade 1 Granular Backfill	Grade 2 Granular Backfill	Structure Backfill
Sieve Size	Percent Passing by Weight							
6 in.	100							
5 in.		90-100						
3 in.			90-100					100
1 1/2 in.		20-50	60-85					
1 1/4 in.				95-100				
1 in.					100			
3/4 in.			40-65	70-93	95-100			
3/8 in.				42-80	50-90			
No. 4			15-40	25-63	35-70	100 (2)	100 (2)	25-100
No. 10		0-10	10-30	16-48	15-55			
No. 40			5-20	8-28	10-35	75 (2)		
No. 100						15 (2)	30 (2)	
No. 200			2-12	2-12	5-15	8 (2)	15 (2)	15 (2)

Notes:

1. Reference: Wisconsin Department of Transportation *Standard Specifications for Highway and Structure Construction.*
2. Percentage applies to the material passing the No. 4 sieve, not the entire sample.
3. Per WisDOT specifications, both breaker run and select crushed material can include concrete that is 'substantially free of steel, building materials and other deleterious material'.

Table 2
Compaction Guidelines

Area	Percent Compaction (1)	
	Clay/Silt	Sand/Gravel
Within 10 ft of building lines		
Footing bearing soils	93 - 95	95
Under floors, steps and walks		
- Lightly loaded floor slab	90	90
- Heavily loaded floor slab and thicker fill zones	92	95
Beyond 10 ft of building lines		
Under walks and pavements		
- Less than 2 ft below subgrade	92	95
- Greater than 2 ft below subgrade	90	90
Landscaping	85	90

Notes:

1. Based on Modified Proctor Dry Density (ASTM D 1557)

APPENDIX E

ROCK EXCAVATION CONSIDERATIONS

APPENDIX E

ROCK EXCAVATION CONSIDERATIONS

In order to minimize probable "rock" excavation expenses during construction, we suggest that project specifications incorporate the following:

A. It is assumed that all excavations to levels and dimensions required by the Contract Documents are earth excavation. Earth excavation includes removal and disposal of all materials encountered except rock/sound bedrock which is defined as natural materials which:

1. Cannot be excavated with a minimum 3/4 cubic yard capacity backhoe without drilling and blasting;

2. Cannot be economically removed with a one-tooth ripper on a D8 cat (or equivalent);

3. Requires the use of special equipment such as a pneumatic hammer;

4. Requires the use of explosives (after obtaining written permission of the owner).

B. Examples of material classified as rock are boulders 1/2 cubic yard or more in volume, bedrock, rock in ledges, and rock-hard cementitious aggregate deposits.

C. Do not proceed with rock excavation work until architect, engineer and/or testing firm (i.e., CGC) has taken the necessary measures to determine quantity of rock excavation required to complete the work. Measurements will be taken after properly stripped of earth by the contractor. Contractor will be paid the difference between the cost of rock and earth excavation based on an agreed upon unit price established prior to starting rock excavation.

A statement should also be included in the specifications to the effect that: "Stated models of earth excavation equipment are merely for purposes of defining the various excavation categories and are not intended to indicate the brand or type of equipment that is to be used."

APPENDIX F

SETTLEMENT PLATFORM INSTRUCTIONS

Settlement Platform Instructions

Settlement platforms will be placed as close to the bottom of the fill as is practical. The surface upon which the settlement platform should rest must be cleaned off to a flat compacted surface. The settlement platform should then be placed in this surface and backfill should be placed over the top of the settlement platform to a depth of at least two feet.

Initial elevations should be taken on the top of the first section of the pipe riser. These should be referenced to the elevation at the platform so that all future additional lengths of riser pipe can be referenced to the elevation of the platform.

The settlement platform locations should be guarded with tall stakes driven into the fill marked with red flags. No equipment should be permitted to operate closer than three feet from the riser pipes. As each layer of fill is being added to the area, fill should be carefully placed around the riser pipe to an elevation slightly above the surrounding area. The vibrating compactor then should be moved to within a foot or so of the riser pipe with care being taken so as to avoid disturbance of the riser pipe. If necessary, hand compacting equipment should be used to avoid damage to the riser pipe.

When settlement platform readings are taken, the elevation of nearby fill should also be taken.

The elevation at the settlement platform and the nearby fill should be observed at least once each week, and during the period that fill is being placed in the vicinity of the platform, these elevations should be obtained daily. All elevation data should be plotted according to time, with one graph prepared per settlement platform. The plotting should contain the time scale along the abscissa and the vertical scale should be height of fill shown going upward from the middle of the paper, and the settlement of the settlement platforms should be plotted downward from the middle of the paper. The time sale should include both the actual calendar date and also the number of days since the platform was installed.

The benchmark to be used in reading the various settlement platforms should be well away from the proposed excavation or filling areas.

If damage occurs to any settlement platform riser pipe, it is suggested that the pipe be repaired as quickly as possible and the readings continued. The adjustment of these readings can be made, considering that settlement rate during the period of damage was uniform.

APPENDIX G

WDSPS SOIL AND SITE EVALUATION – STORM FORM

Division of Industry Services
P.O. Box 2658
Madison, Wisconsin 53701

Attachment 2:

SOIL AND SITE EVALUATION - STORM

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Attach a complete site plan on paper not less than 8 ½ x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent of slope, scale or dimensions, north arrow, and BM referenced to nearest road ***Please print all information*** Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m)]	County: Green Parcel I.D.: 0576.3100 Reviewed by: Date:

Property Owner: B&S LTD c/o Kay Spidahl		Property Location: Govt. Lot NW ¼ SE ¼ S 36 T 2 N R 7 E	
Property Owner's Mail Address: W6799 County Road B		Lot #: 1	Block#:	Subd. Name or CSM #: CSM 5631 (V28-P237)
City: Monroe	State: WI	Zip Code: 53566-6413	Phone Number	☐ City ☐ Village ☒ Town: Monroe	Nearest Road: WI-11
Drainage area: _____ ☐ sq ft ☐ acres		Hydraulic Application Test Method	Soil Moisture Date of soil borings: _____ USDA-NRCS WETS Value:
Test site suitable for (check all that apply): ☐ Site not suitable;		☒ Morphological Evaluation	☐ Dry = 1;
☐ Bioretention; ☐ Subsurface Disperal System;		☐ Double Ring Infiltrometer	☐ Normal = 2;
☐ Reuse; ☐ Irrigation; ☐ Other _____		☐ Other: (specify) _____	☐ Wet = 3.

B-17 #OBS. ☐ Pit ☒ Boring Ground surface elevation 1019.2 ft. Elevation of limiting factor 1013.2 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-14	Topsoil [not sampled]								
2	14-72	10YR 5/4	f1d 10YR 6/1	SiCL	0m	mvfi		<5		0.04
3	72-180	2.5Y 5/6	none	Bedrock						

Comments: Groundwater was not encountered during or upon the completion of drilling. Redox in Horizon 2 is assumed to be a result of periodically infiltrating surface water and the restrictive permeability of these soils.

Overall Site Comments: Encountered soil profile of clay over bedrock is not conducive for stormwater infiltration.

Name (Please Print)	Tim F. Gassenheimer	Signature		Credential Number: SP-011900004
Address	129 Milky Way, Madison, WI 53718		Date Evaluation Conducted: December 19, 2023	Telephone Number: (608) 288-4100

Division of Industry Services
P.O. Box 2658
Madison, Wisconsin 53701

Attachment 2:

SOIL AND SITE EVALUATION - STORM

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Attach a complete site plan on paper not less than 8 ½ x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent of slope, scale or dimensions, north arrow, and BM referenced to nearest road ***Please print all information*** Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m)]	County: Green Parcel I.D.: 0576.0100 Reviewed by: Date:

Property Owner: B&S LTD c/o Kay Spidahl		Property Location: Govt. Lot NE ¼ SW ¼ S 36 T 2 N R 7 E	
Property Owner's Mail Address: W6799 County Road B		Lot #: 1	Block#:	Subd. Name or CSM #: CSM 5632 (V28-P237)
City: Monroe	State: WI	Zip Code: 53566-6413	Phone Number	☐ City ☐ Village ☒ Town: Monroe	Nearest Road: WI-11
Drainage area: _____ ☐ sq ft ☐ acres		Hydraulic Application Test Method	Soil Moisture Date of soil borings: _____ USDA-NRCS WETS Value:
Test site suitable for (check all that apply): ☐ Site not suitable;		☒ Morphological Evaluation	☐ Dry = 1;
☐ Bioretention; ☐ Subsurface Disperal System;		☐ Double Ring Infiltrometer	☐ Normal = 2;
☐ Reuse; ☐ Irrigation; ☐ Other _____		☐ Other: (specify) _____	☐ Wet = 3.

B-26 #OBS. ☐ Pit ☒ Boring Ground surface elevation 1033.0 ft. Elevation of limiting factor 1019.5 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-12	Topsoil [not sampled]								
2	12-42	10YR 4/2	none	SiL	3msbk	mfi		<10		0.13
3	42-72	10YR 5/4	f2f 10YR 6/1	SiCL	0m	mvfi		<5		0.04
4	72-162	7.5YR 5/4	none	CL	0m	mfi		<10		0.03
5	162-180	10YR 7/4	none	.Bedrock						

Comments: Groundwater was not encountered during or upon the completion of drilling. Redox in Horizon 3 is assumed to be a result of periodically infiltrating surface water and the restrictive permeability of these soils.

B-27 #OBS. ☐ Pit ☒ Boring Ground surface elevation 1047.9 ft. Elevation of limiting factor <1032.9 ft.

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-12	Topsoil [not sampled]								
2	12-72	10YR 4/4	none	SiCL	2msbk	mfi		<5		0.04
3	72-96	10YR 5/3	none	SiCL	0m	mfi		<10		0.04
4	96-180	7.5YR 5/6, 4/6	none	SiCL	2msbk	mfi		<10		0.04

Comments: Groundwater was not encountered during or upon the completion of drilling.

Overall Site Comments: Encountered soil profile of clay/silt over bedrock is not conducive for stormwater infiltration.

Name (Please Print)	Tim F. Gassenheimer	Signature		Credential Number: SP-011900004
Address	129 Milky Way, Madison, WI 53718		Date Evaluation Conducted: December 19, 2023	Telephone Number: (608) 288-4100