



midwest engineering services, inc.

geotechnical • environmental • materials engineers

12839 30th Avenue, Suite A
Chippewa Falls, WI 54729
715-738-2770
FAX 715-738-2771
www.midwesteng.com

March 26, 2007

Mr. Jerry Killian, Administrator
City of Prescott
800 Borner Street
Prescott, Wisconsin 54021

**SUBJECT: Subsurface Exploration and Geotechnical Analysis
TID #5 Improvements
Prescott, Wisconsin
MES Project No. 4-73027**

Dear Mr. Killian,

The subsurface exploration and analysis for the referenced project has been completed. Two (2) copies of the report are included herein, and one (1) copy has been forwarded to Mr. David Schofield of Cedar Corporation.

After you have had the opportunity of reading the report, please call at any time with any questions or comments you may have. Midwest Engineering Services, Inc. (MES) appreciates the opportunity to be of service on this project, and looks forward to continuing as your geotechnical consultant during the design and construction phases, as well as your upcoming projects.

Sincerely,

MIDWEST ENGINEERING SERVICES, INC.

Jeffrey A. Manninen
Branch Manager

James M. Becco, P.E.
Region Manager

CORPORATE OFFICE: WAUKESHA, WI 262-970-0764

APPLETON, WI GREEN BAY, WI RIPON, WI CHAMPAIGN, IL CHICAGO, IL O'FALLON, IL GRAND RAPIDS, MI MERRILLVILLE, IN ST. LOUIS, MO

SUBSURFACE EXPLORATION AND GEOTECHNICAL ANALYSIS

TID #5 Improvements

Prescott, Wisconsin

Prepared for

City of Prescott

800 Bomer Street

Prescott, Wisconsin 54021

MES Project No. 4-73027

March 26, 2007

TABLE OF CONTENTS

	<u>PAGE</u>
Introduction	1
• General	
• Purpose	
• Scope	
• Authorization	
Site and Project Description	1
• Site Features and Project Description	
Exploration Procedures	2
• Scope Summary	
• Field Exploration	
• Laboratory Testing	
Description of Subsurface Conditions	3
• General	
• Soil Conditions	
• Groundwater Observations	
Evaluation and Recommendations	4
• General	
• Site Preparation	
• Preliminary Foundation Recommendations	
• Pipe Material	
• Trench Backfilling	
Construction Considerations	8
• Groundwater Control	
• Excavations	
• Seismic Design Considerations	
Pavement Design Recommendations	10
General Comments	11
APPENDIX (in order of appearance)	
• Figure 1 - Boring Location Plan	
• Soil Boring Logs	
• General Notes	

INTRODUCTION

General

This report presents the results of the subsurface exploration and analysis for the street and utility construction for the proposed industrial park in the City of Prescott, Wisconsin. The work was performed for the City of Prescott, at the request of Mr. David Schofield of Cedar Corporation.

Purpose

The purpose of this study was to determine and evaluate the subsurface conditions at the site, and to establish parameters for use by the design engineers in preparing the utility and pavement designs for the proposed project. Preliminary foundation recommendations have also been included. However, a comprehensive foundation evaluation, and recommendations for specific lots or structures, was beyond the scope of this report.

Scope

The scope of services included a site reconnaissance, the subsurface exploration, a determination of soil characteristics by field and laboratory testing, and an evaluation and analysis of the data obtained. The scope of the field exploration program, including the number, depth and approximate location of the borings, was determined by Cedar Corporation.

Authorization

The description of services and authorization to perform this subsurface exploration and analysis were in the form of a signed copy of MES Proposal No. 4-7025, dated February 22, 2007. This subsurface exploration and analysis report has been prepared on behalf of and exclusively for the use of the City of Prescott. The information contained in this report may not be relied upon by any other parties without the written consent of MES, and acceptance by such parties of MES' General Conditions.

SITE AND PROJECT DESCRIPTION

Site Features and Project Description

The proposed project will consist of the construction of new roads and utilities for a planned industrial park which will be located on the northeast corner of the intersection of USH 10 and STH 29/35; and on the southeast corner of the intersection of USH 10 and Dexter Street, in Prescott, Wisconsin. At the time of the subsurface exploration, the subject site generally consisted of vacant fields. Some grading had been performed on the south side of USH 10, in preparation of the new roads.

Exact utility invert depths had not been determined at the time of this report preparation. However, it is understood that the sanitary sewer lines located on the north and south sides of USH 10 will be installed to maximum depths of about 20 and 30 feet below existing grades, respectively. It is understood that the roads located on the north side of USH 10 will be about 3 to 5 feet lower than existing grades, and that the grades of the roads on the south side of USH 10 will be similar to existing ground surface elevations. It is understood that the new buildings located within the industrial park will utilize slab-on-grade construction, and will not have basements.

EXPLORATION PROCEDURES

Scope Summary

The field and laboratory data utilized in the evaluation and analysis of the subsurface materials was obtained by drilling exploratory test borings, securing soil samples by the split-spoon sampling method, and subjecting the samples to laboratory testing.

Field Exploration

Seventeen (17) soil borings to a depth of about 20 feet (B-1 through B-17), and four (4) soil borings to a depth of about 30 feet below ground surface (B-18 through B-21), were planned for this project. However, auger refusal, due to sandstone, was encountered in seventeen (17) of the borings (B-1 through B-7, B-10, B-11, B-13 and B-15 through B-21) at depths of about 6.5 to 18.6 feet (EL 842.0 to EL 894.8). Cedar Corporation staked the boring locations and provided ground surface elevations.

The soil test borings were performed with a truck-mounted rotary drilling rig utilizing continuous flight hollow stem augers (HSA) to advance the boreholes. Representative soil samples were obtained by the Standard Penetration Test (SPT) method in general accordance with ASTM D-1586 procedures. The SPT soil samples were transferred into clean glass jars immediately after retrieval, and returned to the laboratory upon completion of the field operations.

A copy of the Soil Boring Logs and the Boring Location Diagram are included in the Appendix. The soil stratification shown on the logs represents the soil conditions at the actual boring locations at the time of the exploration. The terms and symbols used on the logs are described in the General Notes found on the last page of the Appendix. After completion of the borings, the boreholes were backfilled to the ground surface with bentonite chips.

Laboratory Testing

Soil samples obtained from the exploration were visually classified by a soils engineer in the laboratory, and subjected to testing, which included moisture content determination testing, percent finer than the No. 200 sieve, and Atterberg Limits determination. The laboratory

testing was performed in general accordance with respective ASTM methods, as applicable, and the results are shown on the boring logs in the Appendix.

DESCRIPTION OF SUBSURFACE CONDITIONS

General

A description of the subsurface conditions encountered at the test boring locations is presented on the Soil Boring Logs. The lines of demarcation shown on the logs represent an approximate boundary between the various soil classifications. It must be recognized that the soil descriptions are considered representative for the specific test hole locations, but that variations may occur between and beyond the sampling intervals and boring locations. The soil depths; surficial topsoil, fill and layer thicknesses; and demarcation lines can be used for preliminary construction calculations, but should not be expected to yield final and exact quantities. A summary of the major soil profile components is described in the following paragraphs.

Soil Conditions

The surface of the site at borings B-1 through B-17 is covered with about 7 to 21 inches of topsoil. The surface at borings B-18 through B-21 is covered with about 6 to 19 inches of fill materials, consisting of mixtures of clayey sand; and silt, which had been placed in preparation of new roads. These surficial soils are generally underlain by natural granular strata comprised of silt and sand, with varying amounts of clay and gravel, to depths ranging from about 1.7 to 21.5 feet (EL 844.7 to EL 897.6). These soils may be considered very loose to very dense, with standard penetration resistances between 2 to 47 blows per foot, and natural moisture contents ranging from 1 to 16 percent. It should be noted that 2 to 7.5 foot thick clay layers were encountered in borings B-5 and B-14, at depths of about 5 and 12.5 feet (EL 883.2 and EL 853.7), respectively.

At each of the borings, with the exception of B-9 and B-14, the granular soils were underlain by sandstone, to at least the termination depths of the borings (6.5 to 21.5 feet / EL 842.0 to EL 894.8). These materials were generally in a very dense condition. As previously noted, the drill rig experienced auger refusal, due to the sandstone, in all of these borings with the exception of B-8 and B-12. However, in some areas, the upper portions of the sandstone was more weathered, and the drill rig was able to penetrate it several feet with the augers.

To aid in the determination of asphalt pavement coefficients, laboratory testing was performed on two (2) samples obtained from the borings. A composite sample of sandy silt, obtained from a depth of about 2.5 to 4 feet below ground surface at borings B-1, B-5 and B-7, was subjected to percent finer than the No. 200 sieve and Atterberg Limits determination. Results of the testing indicate a non-plastic soil, with a percent passing the No. 200 sieve of 81. This soil has an AASHTO classification of A-4.

A sample of silty, clayey sand, obtained from the upper 10 to 19 inches of borings B-18, B-19 and B-20, was also subjected to percent finer than the No. 200 sieve and Atterberg Limits determination. Results of the testing indicate a relatively low-plasticity soil with a Plasticity Index of 9 and a percent passing the No. 200 sieve of 39. This soil also has an AASHTO classification of A-4.

The foregoing discussion of soil conditions on this site represents a generalized soil profile as determined at the test boring locations. A more detailed description and supporting data for each test location can be found on the individual Soil Boring Logs.

Groundwater Observations

Groundwater observations were made during drilling operations and in the open boreholes upon completion. No free water was encountered in any of the boreholes while drilling or upon completion.

On the basis of the field observations and the soils relative moisture contents, the free water level is judged to be below the depth of the borings at the time of the exploration. However, it must be recognized that groundwater levels fluctuate with time due to variations in seasonal precipitation, lateral drainage conditions, and soil permeability characteristics.

EVALUATION AND RECOMMENDATIONS

General

On the basis of the data obtained in this exploration, the soils encountered in the borings below the topsoil are generally considered suitable for the support of new structures, utilities and pavements. However, some of the on-site soils exhibited relatively low strength characteristics, and therefore, dependent upon the locations and development grades selected for new structures and utility lines, some overexcavation and/or recompaction/replacement of bearing soils may be required. A thorough subsurface exploration and foundation evaluation must be performed within the building footprints to determine site-specific recommendations for each structure, as planning progresses.

Very dense sandstone was encountered above the planned maximum depths of the utility inverts within all but two (2) of the soil borings (B-9 and B-14). The following table indicates the approximate elevations that sandstone was encountered, the approximate elevations where drilling refusal was encountered, and the elevations of the planned deepest utility bottom at that location.

Boring Number	Approximate Elevation of Sandstone (ft.)	Approximate Elevation of Auger Refusal (ft.)	Estimated Elevation to Approximate Pipe Invert (ft.)
B-1	845.1	842.0	840.6
B-2	862.1	854.1	850.1
B-3	869.3	869.0	855.5
B-4	870.2	866.1	856.2
B-5	881.2	874.1	868.2
B-6	895.4	894.8	887.4
B-7	897.4	894.3	892.4
B-8	910.9	—	909.4
B-10	891.1	888.0	879.6
B-11	874.2	872.1	863.2
B-12	844.8	—	844.8
B-13	860.9	860.1	847.9
B-15	863.1	858.1	850.1
B-16	861.8	855.1	849.8
B-17	895.2	892.6	882.7
B-18	893.3	886.0	866.1
B-19	886.1	878.0	861.1
B-20	891.8	884.3	863.4
B-21	879.5	871.1	851.3

Based on this, extremely difficult excavating, requiring blasting or other rock removal methods, will be encountered.

Utility construction must be performed in accordance with "The Standard Specifications for Sewer and Water Line Construction for the State of Wisconsin." A discussion of construction guidelines and recommendations is included in the following sections.

Site Preparation

The presence of organic topsoil and surface vegetation in the subgrade can adversely affect the serviceability of structural fills, foundations, floor slabs, pavements and other structures placed upon them. To reduce the potential for detrimental settlements, the general site preparation in these areas must include the removal of these items along with any other deleterious materials encountered. On the basis of the data obtained from the borings, the estimated depth of topsoil removal will range from about 7 to 21 inches. However, some variation should be expected between and beyond the boring locations.

In the areas of planned buildings, roads, driveways, sidewalks, or other structures, subsequent to stripping of the topsoil and cutting to planned grades, the resulting subgrade must be thoroughly proofrolled during dry weather conditions to detect unstable, yielding soils which

must be removed or improved by appropriate preparation and compaction techniques. The upper soils across the site have high amounts of fines (silt and clay) which make them very sensitive to moisture. As such, it is anticipated that if construction is carried out during periods of cool and/or wet weather, it will be difficult to create a stable working subgrade in some areas. Scarification and drying of wet soils or removal and replacement with suitable fill are two methods which can be considered when unstable conditions are encountered, but this should be determined by the soils engineer at the time of construction.

Prior to the placement of pipe, or before any supporting fill is placed, the loose or obviously compressive materials must be removed. Any isolated areas of excessive yielding should be excavated and backfilled with clean, compacted soil.

In planned areas of overlying structures (beneath roads, driveways, light poles, utilities or other structures), any fill used above the pipe bedding and cover material should ideally be a clean, granular material. In general, portions of the on-site sand soils are considered suitable for re-use as structural fill, subject to proper moisture control. However, the soils containing high amounts of fines, present in most areas, are highly moisture sensitive and will be extremely difficult to re-use as backfill if they become wet. Additionally, excavated or blasted sandstone is not likely to be suitable for re-use as backfill, unless it is crushed to proper size. The use of imported granular fill may be required, and extensive quantities may be needed in some areas.

Fill in structural areas should be placed in maximum twelve (12) inch loose lifts (except that the first layer above the pipe can be increased to 24 inches in thickness) and be compacted to 95 percent of ASTM-D698 (Standard Proctor). The selection of fill materials for various applications should be done in consultation with the soils engineer.

Proper moisture control is essential to reduce the amount of compactive effort necessary to achieve the desired densities. This is especially true of clayey and silty soils, where scarification and aeration may be required to achieve near-optimum moisture levels prior to compaction. Small hand-operated compactors, such as jumping-jack type, should be used in confined areas and granular fills are generally more readily compacted to the required densities in such applications.

Preliminary Foundation Recommendations

The following is a general overview of the subsurface conditions for the site, as it relates to foundation analysis, and can be used in preliminary site planning. It is recommended that a more in-depth investigation be conducted prior to construction to determine specific recommendations for each particular structure.

In general, typical one or two-story commercial buildings may be supported by a conventional spread footing system, bearing on suitable naturally occurring soils or within structural fill, if soil conditions and development grades allow. Based on the data obtained in the soil borings for this preliminary study, some of the naturally occurring soils encountered beneath the topsoil at

the boring locations, are considered suitable for direct foundation or structural fill support. However, some of the soils are in a very loose to loose condition, and therefore, dependent upon the locations and development grades selected, some overexcavation and recompaction/replacement and/or extension of foundations may be required.

It is anticipated that conventional spread footings and continuous wall footings bearing upon the naturally occurring soils encountered in the upper levels of the borings, or upon structural fill placed to form a suitable subgrade, could be designed for a net allowable soil bearing pressure in the range of 1,000 to 4,000 PSF. However, this will be dependent upon the locations of the structures, and bearing elevations.

Silty and clayey (high fines content) soils are highly moisture sensitive, and are therefore subject to significant softening and yielding when the confining effect of the overburden is removed. If soft or unstable areas are observed at the time of construction, it may be necessary to remove the soils and replace them with compacted structural fill, possibly in conjunction with the use of a crushed stone working mat. It is recommended that the footing excavations be observed by a representative of the soils engineer at the time of construction to evaluate the bearing subgrade.

Since cutting and filling will likely take place for the site grading, the subgrade must be properly prepared prior to filling activities, and all fill must be placed in a controlled manner. This should be monitored and tested by a representative of the soils engineer. Recommendations for subgrade preparation and compaction were presented in a previous section of this report.

In general, the performance of foundation systems on this site will be dependent on the various factors discussed herein. The soil bearing pressures suggested herein should be used for preliminary planning only, in the evaluation of general site feasibility. As indicated previously, additional soil borings are recommended when the final structure locations have been determined.

Pipe Material

In order to reduce the amount of pipe deflection, it must be recognized that proper selection and compaction of the pipe bedding and cover materials is essential. This should be done in accordance with the standard specification for sewer construction. Bedding material exhibiting a well defined moisture density relationship must be compacted to 95 percent of ASTM-D698 (Standard Proctor).

In general, the pipe and associated manholes, bearing upon medium dense to very dense granular soils, can be designed to exert a net allowable bearing pressure of 3000 psf. However, dependent upon the invert locations selected, the removal and replacement of natural low-strength soils may be required. If blasting is required, the removal and replacement of larger blastrock, and/or the use of a vibratory plate compactor within the bottoms of the excavations may be required prior to pipe placement. It may also be necessary

to remove soft or loose overburden soils which have sloughed into the excavation from the sidewalls during the blasting activities. A suitable and stable subgrade must be present prior to the placement of piping or bedding materials.

Trench Backfilling

Backfilling of the pipe and trench should be performed in accordance with the applicable chapters of the *Standard Specification for Sewer and Water Line Construction*. This will be dependent on the type of pipe selected, embedment depth and other factors.

It is recommended that well graded granular soils such as those specified in Tables 37 and 39 of the *Standard Specification for Sewer and Water Construction* be utilized as backfill in utility trenches to reduce the potential for consolidation and settlement of the backfill. All fill soils must be placed and compacted in accordance with the site grading specifications under engineering controlled conditions, to provide suitable support for overlying structures and roadways. Silt and clay soils are not recommended for reuse as backfill within utility trenches due to the substantial difficulty of obtaining proper compaction in confined areas.

Placement of bedding and cover material shall be sufficient to protect the type of pipe selected as specified by the pipe manufacturer. Trench backfill should be placed in layers not more than 12 inches in loose thickness before compaction, except that the first lift of backfill placed over the pipe can be increased to 24 inches if necessary to protect the pipe from compaction equipment. Subsequently thinner lifts may be required depending on the type and size of compaction equipment available.

Each lift of backfill above the pipe bedding and cover, especially in areas of overlying structures (pavement, sidewalks, light poles, etc.) must be compacted to a density of at least 95 percent of the maximum dry density as determined by the Standard Proctor method (ASTM D698).

CONSTRUCTION CONSIDERATIONS

Groundwater Control

Because no groundwater was encountered in the borings during the exploration, no major groundwater-related difficulties are anticipated during excavation and construction of the proposed shallow foundation system. A gravity drainage system and filtered sump pumps, or other conventional dewatering procedures, should be adequate to control perched water if encountered during shallow excavation work.

While no groundwater was encountered at the time the borings were drilled, it should be noted that seasonal changes in precipitation and site drainage conditions can cause accumulation of free water in the upper levels. Additionally, extensive zones of groundwater (not disclosed by

the borings) can be present within caverns or other pockets below the bedrock surface. If such are encountered where deep excavations into bedrock are necessary, a series of well points and/or high volume pumps with sufficient lifting capacity, along with support of excavation side walls (within the overburden) with shoring and bracing or sheet piling, may be required to maintain dry conditions to permit proper construction, and the placement and compaction of backfill.

Excavations

Due to the presence of granular soils, and the planned depth of sewer and water construction, the use of shoring, bracing, and/or sloping will be required. Excavations for utilities may require the flattening of side slopes to at least 1.5 H to 1.0 V. To reduce the volume of soil to be removed it may be beneficial to use a trench box in combination with flattening of the side slopes, depending on the actual depth of the excavation. Where a combination of flattening slopes with a trench box is selected, the toe of the slope of the upper portion must start 1.5 feet below the top of the trench box.

Sandstone was encountered in the majority of the borings, at depths ranging from about 1.6 to 20 feet (EL 844.8 to EL 897.4). As previously noted, the drill rig experienced auger refusal, due to the sandstone, in seventeen (17) of the borings, at depths ranging from 6.5 to 18.6 feet (EL 842.0 to EL 894.8). However, at most of the borings, the drill rig was able to penetrate several feet into the more weathered materials, above the refusal depths. A qualified contractor, using proper equipment and ripping techniques, may be able to excavate at least the upper portions of the sandstone in some areas. However, difficult digging and longer excavation times should be expected. In addition, considering the refusal depths and the corresponding invert elevations, blasting will likely be required in some areas. This must be performed by an experienced contractor, utilizing proper care to avoid damage to nearby buildings, utilities, or other structures. It is recommended that test pits be performed as part of preconstruction planning to further evaluate the excavatability and surface elevations of the sandstone. It is also recommended that photographic and/or video documentation of the condition of nearby buildings, utilities, and other structures be made prior to any blasting.

Since the subgrade overburden soils are generally sensitive to moisture, every effort should be made to provide adequate drainage across the site during construction, and to prevent runoff from infiltrating excavations. These soils are also subject to erosion caused by runoff, and erosion control measures should be implemented where needed or required by local ordinances. All excavation work must be performed in accordance with applicable federal and state OSHA codes, and as necessary to protect life and property.

Seismic Design Parameters

Natural soils encountered at the test boring locations generally had moderate strength characteristics. The site is therefore considered to be Seismic Class C, based on Table 1615.1.1 of the 2000 International Building Code.

PAVEMENT DESIGN RECOMMENDATIONS

Based on the existing and expected grades across the project site, and the subgrade conditions encountered at the boring locations, the pavement subgrade will generally consist of silt, with varying amounts of sand, on the north side of USH 10; and of silty, clayey sand, with sandstone fragments, on the south side of USH 10. Two (2) samples were subjected to laboratory testing. A composite sample, obtained from a depth of about 2.5 to 4 feet below ground surface at borings B-1, B-5 and B-7 (located on the north side of USH 10) was subjected to percent finer than the No. 200 sieve and Atterberg Limits determination. Results of the testing indicated a non-plastic soil, with an AASHTO classification of A-4. A sample of silty, clayey sand, obtained from the upper 10 to 19 inches of borings B-18, B-19 and B-20 (located on the south side of USH 10) was also subjected to percent finer than the No. 200 sieve and Atterberg Limits determination. Results of the testing indicate a relatively low-plasticity soil which also has an AASHTO classification of A-4.

These soils are generally rated as poor for pavement subgrade support based upon their low to moderate shrink/swell potential, moderate to high frost susceptibility, and poor drainage characteristics. They have a Frost Index of F-4, Design Group Index of 16, Soil Support Value of 3.5, and Subgrade Modulus of 150 pci.

Analysis of the visual classification and laboratory testing has been made in determining pertinent engineering properties of the subgrade soils, as described in the Wisconsin Soils Manual for Pavement Section Design. Any new fill brought to the site to raise the existing grade must be of comparable or better quality than the A-4 soils reported herein.

PAVEMENT SUBGRADE DESIGN COEFFICIENTS

AASHTO Soil Classification	A-4
Drainage	Poor
Shrink/Swell Potential	Low to Moderate
Design Frost Index	F-4
Design Group Index	16
Soil Support Value	3.5
Estimated Subgrade Modulus (k)	150

GENERAL COMMENTS

This geotechnical exploration analysis has been prepared to aid in the evaluation of the subsurface conditions on this site. The recommendations presented herein are based on the available soil information and the design information provided. Any changes in the design information should be brought to the attention of the soils engineer to determine if modifications in the recommendations are required. A soils engineer should also review the final design plans and specifications to determine that the recommendations presented herein have been interpreted and implemented as intended.

This geotechnical study has been conducted in a manner consistent with that level of care ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. The findings, recommendations and opinions contained herein have been promulgated in accordance with generally accepted practice in the fields of foundation engineering, soils mechanics, and engineering geology. No other representations, expressed or implied, and no warranty or guarantee is included or intended in this report.

It is recommended that the earthwork and backfill operations be monitored by the soils engineer, to test and evaluate the soil capacities, and the selection, placement and compaction of controlled fills.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

APPENDIX

Appendix (in order of appearance)
Figure 1 – Boring Location Plan
Soil Boring Logs
General Notes

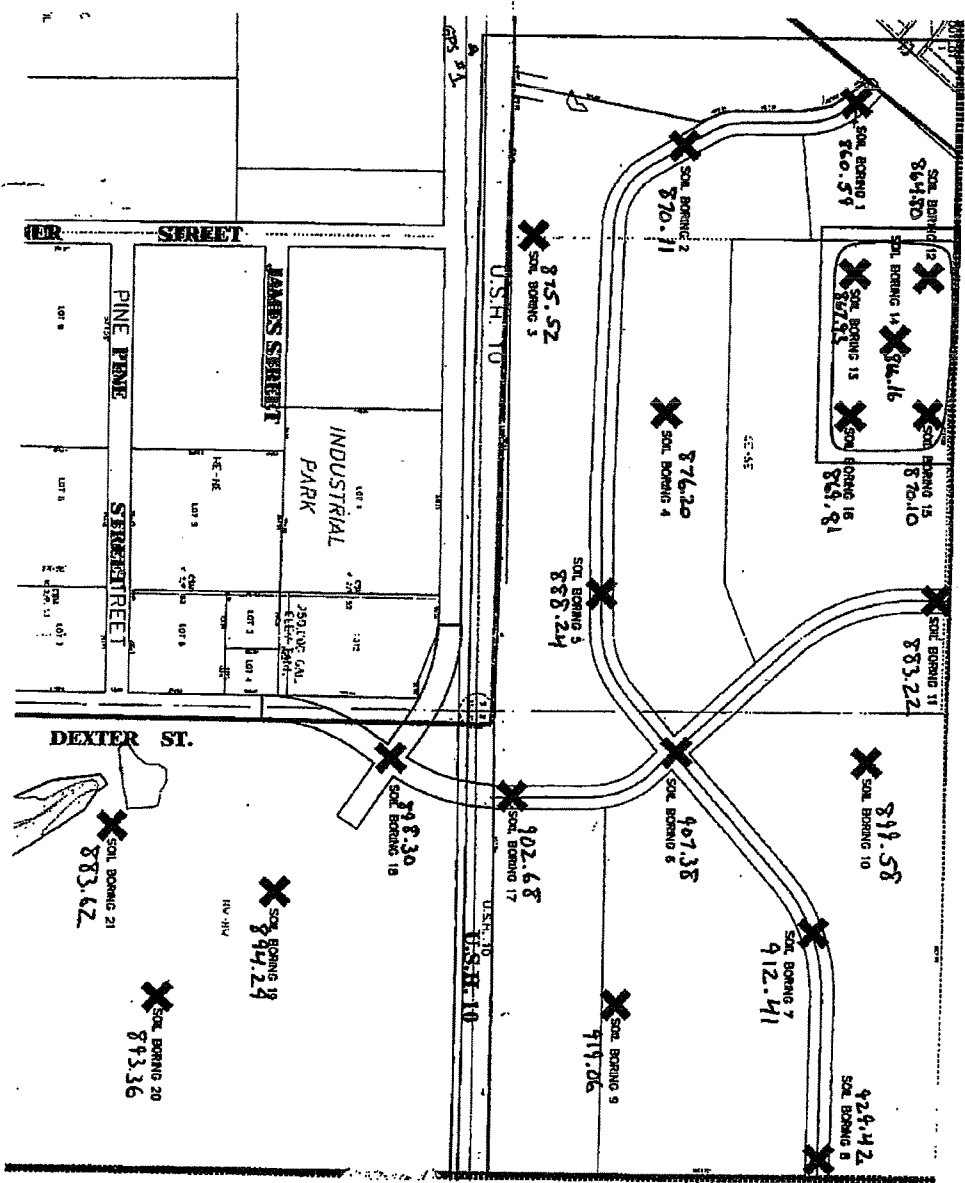


FIGURE 1
 BORING LOCATION PLAN
 TID #5 IMPROVEMENTS
 PRESCOTT, WISCONSIN
 (DRAWING PROVIDED BY CEDAR CORP.)

PROJECT NO.:	4-73027
DATE:	3-28-07

NOTE: B-18 WAS OFFSET 45' SOUTH, B-19 WAS OFFSET 80' SOUTH AND B-21 WAS OFFSET 10' EAST, SO THEY COULD BE PERFORMED WITHIN PLANNED ROADS, AS PER CEDAR CORP.



midwest engineering services, inc.

SOIL BORING LOG: B - 1

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 9, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS	
GROUND SURFACE ELEVATION: 860.6								
1	859.6	0-13": Dark grayish brown SILT, with clay, trace sand (TOPSOIL)						
2	858.6	1-AU						
3	857.6	Grayish brown sandy SILT, trace clay, damp						
4	856.6	2-SS	5			16		
5	855.6							
6	854.6	Dark brown sandy SILT, trace clay, damp						
7	853.6	3-SS	5			16		
8	852.6							
9	851.6	Brown sandy SILT, little clay, damp						
10	850.6	4-SS	9			13		
11	849.6							
12	848.6	5-SS	7			12		
13	847.6	Brown silty SAND, little gravel, moist						
14	846.6							
15	845.6							
16	844.6	6-SS	25					
17	843.6	Tan to light gray weathered SANDSTONE						
18	842.6	7-SS	50/1"					
19	841.6							
20	840.6	END OF BORING @ 18.6± FEET						
21	839.6	(Auger refusal at 18.6 feet due to sandstone)						
22	838.6							
23	837.6							
24	836.6							
25	835.6							
26	834.6							
27	833.6							
28	832.6							
29	831.6							
30	830.6							
31	829.6							
32	828.6							
33	827.6							
34	826.6							
35	825.6							
36	824.6							
37	823.6							
38	822.6							
39	821.6							
40	820.6							
41	819.6							
42	818.6							
WATER LEVEL OBSERVATIONS:			ADDITIONAL COMMENTS:					
During drilling: None Observed			-No groundwater encountered while drilling or upon completion.					
Upon completion: None Observed								
Depth/Delay: NA								
Caved at: 12± feet (EL. 848.6±)								

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 2

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 8, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 870.1							
1	869.1 0-10": Dark brown SILT, with clay, trace sand and organics (TOPSOIL)	1-AU					
2	868.1 10-18": Dark brown SILT, little clay, trace sand, damp						
3	867.1						
4	866.1	2-SS	2			5	
5	865.1 Orangish brown silty SAND, damp						
6	864.1	3-SS	4			7	
7	863.1						
8	862.1	4-SS	53				
9	861.1						
10	860.1						
11	859.1 Tan weathered SANDSTONE						
12	858.1	5-SS	94				
13	857.1						
14	856.1						
15	855.1	6-SS	50/3"				
16	854.1						
17	853.1						
18	852.1						
19	851.1						
20	850.1						
21	849.1						
22	848.1						
23	847.1						
24	846.1						
25	845.1						
26	844.1						
27	843.1						
28	842.1						
29	841.1						
30	840.1						
31	839.1						
32	838.1						
33	837.1						
34	836.1						
35	835.1						
36	834.1						
37	833.1						
38	832.1						
39	831.1						
40	830.1						
41	829.1						
42	828.1						
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 7.3± feet (EL. 862.8±)		ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 3

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 8, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
	GROUND SURFACE ELEVATION: 875.5						
1	874.5 0-12": Dark brown SILT, with clay, trace sand and organics (TOPSOIL)	1-AU					
2	873.5 Brown sandy SILT, trace clay, damp						
3	872.5	2-SS	3			6	
4	871.5 Orangish brown silty SAND, damp						
5	870.5	3-SS	36				
6	869.5 5.8-6.2": Brown clayey SAND, moist						
7	868.5 6.2-6.5": Tan weathered SANDSTONE						
8	867.5						
9	866.5						
10	865.5						
11	864.5						
12	863.5						
13	862.5						
14	861.5						
15	860.5						
16	859.5						
17	858.5						
18	857.5						
19	856.5						
20	855.5						
21	854.5						
22	853.5						
23	852.5						
24	851.5						
25	850.5						
26	849.5						
27	848.5						
28	847.5						
29	846.5						
30	845.5						
31	844.5						
32	843.5						
33	842.5						
34	841.5						
35	840.5						
36	839.5						
37	838.5						
38	837.5						
39	836.5						
40	835.5						
41	834.5						
42	833.5						
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 3.3± feet (EL 872.2±)		ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 4

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 8, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 876.2							
1 875.2	0-15": Dark brown SILT, with clay, little organics, trace sand (TOPSOIL)	1-AU					
2 874.2							
3 873.2							
4 872.2	Oranglish brown silty SAND, damp	2-SS	4			6	
5 871.2							
6 870.2		3-SS	36				
7 869.2							
8 868.2	Tan weathered SANDSTONE	4-SS	50/1"				
9 867.2							
10 866.2		5-SS	50/1"				
11 865.2	END OF BORING @ 10.1± FEET (Auger refusal at 10.1 feet due to sandstone)						
12 864.2							
13 863.2							
14 862.2							
15 861.2							
16 860.2							
17 859.2							
18 858.2							
19 857.2							
20 856.2							
21 855.2							
22 854.2							
23 853.2							
24 852.2							
25 851.2							
26 850.2							
27 849.2							
28 848.2							
29 847.2							
30 846.2							
31 845.2							
32 844.2							
33 843.2							
34 842.2							
35 841.2							
36 840.2							
37 839.2							
38 838.2							
39 837.2							
40 836.2							
41 835.2							
42 834.2							
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 4.2± feet (EL 872.0±)		ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 5

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 8, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION		SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 888.2								
1	887.2	0-21": Dark brown SILT, with clay, little organics, trace sand (TOPSOIL)	1-AU					
2	886.2	Brown SILT, little sand and clay, damp						
3	885.2							
4	884.2	Brown sandy SILT, trace clay, damp	2-SS	6			12	
5	883.2							
6	882.2	Brown sandy CLAY, moist	3-SS	15			17	
7	881.2							
8	880.2	Tan weathered SANDSTONE	4-SS	50/5"				
9	879.2							
10	878.2							
11	877.2			5-SS	50/4"			
12	876.2							
13	875.2							
14	874.2		6-SS	50/1"				
15	873.2	END OF BORING @ 14.1± FEET (Auger refusal at 14.1 feet due to sandstone)						
16	872.2							
17	871.2							
18	870.2							
19	869.2							
20	868.2							
21	867.2							
22	866.2							
23	865.2							
24	864.2							
25	863.2							
26	862.2							
27	861.2							
28	860.2							
29	859.2							
30	858.2							
31	857.2							
32	856.2							
33	855.2							
34	854.2							
35	853.2							
36	852.2							
37	851.2							
38	850.2							
39	849.2							
40	848.2							
41	847.2							
42	846.2							
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 6.7± feet (EL 881.5±)			ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 6

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 12, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 907.4							
1	906.4 0-18": Dark brown SILT, with clay, little organics, trace sand (TOPSOIL)	1-AU					
2	905.4 Brown SILT, little clay, trace sand, moist						
3	904.4						
4	903.4 Brown SILT, little sand, trace clay, damp	2-SS	7			13	
5	902.4						
6	901.4	3-SS	13			10	
7	900.4 Brown SAND, little silt and clay, trace gravel, moist						
8	899.4						
9	898.4 Yellowish brown SAND, with interbedded clay seams, moist	4-SS	12			10	
10	897.4						
11	896.4	5-SS	7			12	
12	895.4 Light brown weathered SANDSTONE	6-SS	50/0.5"				
13	894.4						
14	893.4						
15	892.4 END OF BORING @ 12.6± FEET (Auger refusal at 12.6 feet due to sandstone)						
16	891.4						
17	890.4						
18	889.4						
19	888.4						
20	887.4						
21	886.4						
22	885.4						
23	884.4						
24	883.4						
25	882.4						
26	881.4						
27	880.4						
28	879.4						
29	878.4						
30	877.4						
31	876.4						
32	875.4						
33	874.4						
34	873.4						
35	872.4						
36	871.4						
37	870.4						
38	869.4						
39	868.4						
40	867.4						
41	866.4						
42	865.4						
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 10± feet (EL. 897.4±)			ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.				

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 7

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 12, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 912.4							
1 911.4	0-15": Dark brown SILT, little clay, trace sand and organics (TOPSOIL)	1-AU					
2 910.4	Brown sandy SILT, trace to little clay, damp	2-SS	9			14	
3 909.4							
4 908.4							
5 907.4							
6 906.4	White, brown and orange SAND, trace silt, damp	3-SS	11			14	
7 905.4							
8 904.4							
9 903.4							
10 902.4	Tan weathered SANDSTONE	4-SS	18			3	
11 901.4							
12 900.4							
13 899.4							
14 898.4	END OF BORING @ 18.1± FEET (Auger refusal at 18.1 feet due to sandstone)	5-SS	19			3	
15 897.4							
16 896.4							
17 895.4							
18 894.4		6-SS	50/4"				
19 893.4		7-SS	50/0.5"				
20 892.4							
21 891.4							
22 890.4							
23 889.4							
24 888.4							
25 887.4							
26 886.4							
27 885.4							
28 884.4							
29 883.4							
30 882.4							
31 881.4							
32 880.4							
33 879.4							
34 878.4							
35 877.4							
36 876.4							
37 875.4							
38 874.4							
39 873.4							
40 872.4							
41 871.4							
42 870.4							
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 14.6± feet (EL 897.8±)		ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 8

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 12, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 929.4							
1	928.4 0-7": Dark brown SILT, with clay and organics, little sand (TOPSOIL)	1-AU					
2	927.4 7-13": Brown clayey SAND, moist						
3	926.4 13-30": Orangish brown silty SAND, trace clay, moist						
4	925.4	2-SS	12			5	
5	924.4						
6	923.4	3-SS	6			5	
7	922.4						
8	921.4						
9	920.4	4-SS	15			2	
10	919.4						
11	918.4	5-SS	21			2	
12	917.4						
13	916.4						
14	915.4						
15	914.4						
16	913.4	6-SS	47			2	
17	912.4						
18	911.4						
19	910.4						
20	909.4 Tan weathered SANDSTONE	7-SS	50/4"				
21	908.4						
22	907.4						
23	906.4						
24	905.4						
25	904.4						
26	903.4						
27	902.4						
28	901.4						
29	900.4						
30	899.4						
31	898.4						
32	897.4						
33	896.4						
34	895.4						
35	894.4						
36	893.4						
37	892.4						
38	891.4						
39	890.4						
40	889.4						
41	888.4						
42	887.4						
WATER LEVEL OBSERVATIONS:		ADDITIONAL COMMENTS:					
During drilling: None Observed		-No groundwater encountered while drilling or upon completion.					
Upon completion: None Observed							
Depth/Delay: NA							
Caved at: 15± feet (EL 914.4±)							

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 9

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 12, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 919.1							
1	918.1 0-13": Dark brown SILT, with clay and organics, little sand (TOPSOIL)	1-AU					
2	917.1 13-18": Dark brown SILT, little clay, trace sand, moist						
3	916.1						
4	915.1 Brown SILT, with clay, little sand, damp	2-SS	15			18	
5	914.1						
6	913.1	3-SS	5			16	
7	912.1 Orangish brown sandy SILT, little clay, damp						
8	911.1						
9	910.1	4-SS	11			10	
10	909.1						
11	908.1 Light brown silty SAND, with clay seams, damp	5-SS	27			7	
12	907.1						
13	906.1						
14	905.1						
15	904.1						
16	903.1	6-SS	33			5	
17	902.1						
18	901.1						
19	900.1 Brown SAND, with gravel, trace silt, damp						
20	899.1						
21	898.1	7-SS	29			3	
22	897.1						
23	896.1						
24	895.1						
25	894.1						
26	893.1						
27	892.1						
28	891.1						
29	890.1						
30	889.1						
31	888.1						
32	887.1						
33	886.1						
34	885.1						
35	884.1						
36	883.1						
37	882.1						
38	881.1						
39	880.1						
40	879.1						
41	878.1						
42	877.1						
WATER LEVEL OBSERVATIONS:		ADDITIONAL COMMENTS:					
During drilling: None Observed		-No groundwater encountered while drilling or upon completion.					
Upon completion: None Observed							
Depth/Delay: NA							
Caved at: 15.5± feet (EL 903.6±)							

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 10

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 5, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION		SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
	GROUND SURFACE ELEVATION: 899.6							
1	898.6	0-15": Dark brown SILT, with clay and organics, little sand (TOPSOIL)	1-AU					
2	897.6	Brown SILT, with clay, little sand, damp						
3	896.6							
4	895.6		2-SS	10			5	
5	894.6	Orangish brown SAND, little clay and gravel, damp						
6	893.6		3-SS	9			3	
7	892.6							
8	891.6							
9	890.6		4-SS	50/5"				
10	889.6	Brown and tan weathered SANDSTONE						
11	888.6		5-SS	50/1"				
12	887.6							
13	886.6							
14	885.6							
15	884.6	END OF BORING @ 11.6± FEET (Auger refusal at 11.6 feet due to sandstone)						
16	883.6							
17	882.6							
18	881.6							
19	880.6							
20	879.6							
21	878.6							
22	877.6							
23	876.6							
24	875.6							
25	874.6							
26	873.6							
27	872.6							
28	871.6							
29	870.6							
30	869.6							
31	868.6							
32	867.6							
33	866.6							
34	865.6							
35	864.6							
36	863.6							
37	862.6							
38	861.6							
39	860.6							
40	859.6							
41	858.6							
42	857.6							
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 4.3± feet (EL 895.3±)			ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 11

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 9, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 883.2							
1	882.2 0-19" Dark brown SILT, little clay and organics, trace sand (TOPSOIL)	1-AU					
2	881.2 Dark brown SILT, little clay, trace sand, damp						
3	880.2						
4	879.2 Light brown sandy SILT, trace clay, damp	2-SS	6			15	
5	878.2						
6	877.2	3-SS	5			7	
7	876.2 Brown clayey SAND, little gravel, moist						
8	875.2 Light brown silty SAND, little sandstone fragments, damp	4-SS	12			10	
9	874.2						
10	873.2 Tan to light gray weathered SANDSTONE	5-SS	50/1"				
11	872.2						
12	871.2						
13	870.2						
14	869.2						
15	868.2						
16	867.2						
17	866.2						
18	865.2						
19	864.2						
20	863.2						
21	862.2						
22	861.2						
23	860.2						
24	859.2						
25	858.2						
26	857.2						
27	856.2						
28	855.2						
29	854.2						
30	853.2						
31	852.2						
32	851.2						
33	850.2						
34	849.2						
35	848.2						
36	847.2						
37	846.2						
38	845.2						
39	844.2						
40	843.2						
41	842.2						
42	841.2						
WATER LEVEL OBSERVATIONS:		ADDITIONAL COMMENTS:					
During drilling: None Observed		-No groundwater encountered while drilling or upon completion.					
Upon completion: None Observed							
Depth/Delay: NA							
Caved at: 5.3± feet (EL. 877.9±)							

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 12

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 9, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS	
GROUND SURFACE ELEVATION: 864.8								
1	863.8	0-12": Dark brown SILT, little sand and clay, trace organics (TOPSOIL)						
2	862.8	1-AU						
3	861.8	Dark brown SILT, little sand, trace clay, damp						
4	860.8	2-SS	4			13		
5	859.8							
6	858.8	3-SS	4			12		
7	857.8	Brown SILT, little sand and clay, damp						
8	856.8							
9	855.8	4-SS	5			4		
10	854.8							
11	853.8	Light brown SAND, trace silt and gravel, damp						
12	852.8							
13	851.8							
14	850.8							
15	849.8							
16	848.8	Tan SAND, with silt and sandstone fragments, damp						
17	847.8							
18	846.8							
19	845.8							
20	844.8							
21	843.8	Tan weathered SANDSTONE						
22	842.8	7-SS	50/1.5'					
23	841.8	END OF BORING @ 21.5± FEET						
24	840.8							
25	839.8							
26	838.8							
27	837.8							
28	836.8							
29	835.8							
30	834.8							
31	833.8							
32	832.8							
33	831.8							
34	830.8							
35	829.8							
36	828.8							
37	827.8							
38	826.8							
39	825.8							
40	824.8							
41	823.8							
42	822.8							
WATER LEVEL OBSERVATIONS:		ADDITIONAL COMMENTS:						
During drilling: None Observed		-No groundwater encountered while drilling or upon completion.						
Upon completion: None Observed								
Depth/Delay: NA								
Caved at: 11± feet (EL 853.8±)								

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 13

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 9, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
	GROUND SURFACE ELEVATION: 867.9						
1	866.9 0-10": Brown SILT, with clay and organics, trace sand (TOPSOIL)	1-AU					
2	865.9 Brown SILT, little sand and clay, moist						
3	864.9						
4	863.9 Brown silty SAND, damp	2-SS	3			6	
5	862.9						
6	861.9 Brown SAND, little silt and gravel, damp	3-SS	8			3	
7	860.9 Tan weathered SANDSTONE	4-SS	50/3"				
8	859.9						
9	858.9						
10	857.9 END OF BORING @ 7.8± FEET (Auger refusal at 7.8 feet due to sandstone)						
11	856.9						
12	855.9						
13	854.9						
14	853.9						
15	852.9						
16	851.9						
17	850.9						
18	849.9						
19	848.9						
20	847.9						
21	846.9						
22	845.9						
23	844.9						
24	843.9						
25	842.9						
26	841.9						
27	840.9						
28	839.9						
29	838.9						
30	837.9						
31	836.9						
32	835.9						
33	834.9						
34	833.9						
35	832.9						
36	831.9						
37	830.9						
38	829.9						
39	828.9						
40	827.9						
41	826.9						
42	825.9						
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 4± feet (EL. 863.9±)		ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 14

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 9, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 866.2							
1	865.2 0-14" Dark brown SILT, little sand, trace clay and organics (TOPSOIL)	1-AU					
2	864.2						
3	863.2 Dark brown SILT, trace sand and clay, damp	2-SS	6			13	
4	862.2						
5	861.2						
6	860.2	3-SS	3			13	
7	859.2						
8	858.2 Brown SILT, little sand and clay, damp	4-SS	7			9	
9	857.2						
10	856.2 Brown SAND, little silt, trace clay and gravel, moist						
11	855.2 Light brown SAND, trace silt and gravel, damp	5-SS	25			2	
12	854.2						
13	853.2						
14	852.2						
15	851.2 Grayish brown silty CLAY, trace sand, moist						
16	850.2	6-SS	5	<0.25		18	
17	849.2						
18	848.2						
19	847.2						
20	846.2 Orangish brown clayey SAND, with gravel, moist	7-SS	9			10	
21	845.2						
22	844.2						
23	843.2						
24	842.2						
25	841.2						
26	840.2						
27	839.2						
28	838.2						
29	837.2						
30	836.2						
31	835.2						
32	834.2						
33	833.2						
34	832.2						
35	831.2						
36	830.2						
37	829.2						
38	828.2						
39	827.2						
40	826.2						
41	825.2						
42	824.2						
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 13.6± feet (EL 852.6±)		ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 15

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 9, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 870.1							
1	869.1 0-15": Dark brown SILT, with clay, trace sand and organics (TOPSOIL)	1-AU					
2	868.1 Brown SILT, little sand and clay, moist						
3	867.1						
4	866.1 Brown silty SAND, damp	2-SS	6			11	
5	865.1						
6	864.1 Light brown SAND, with clay cells, moist	3-SS	13			6	
7	863.1						
8	862.1						
9	861.1 Tan weathered SANDSTONE	4-SS	50/5.5"				
10	860.1						
11	859.1	5-SS	50/5"				
12	858.1						
13	857.1						
14	856.1						
15	855.1	END OF BORING @ 12.0± FEET (Auger refusal at 12 feet due to sandstone)					
16	854.1						
17	853.1						
18	852.1						
19	851.1						
20	850.1						
21	849.1						
22	848.1						
23	847.1						
24	846.1						
25	845.1						
26	844.1						
27	843.1						
28	842.1						
29	841.1						
30	840.1						
31	839.1						
32	838.1						
33	837.1						
34	836.1						
35	835.1						
36	834.1						
37	833.1						
38	832.1						
39	831.1						
40	830.1						
41	829.1						
42	828.1						
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 5.3± feet (EL 864.8±)		ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 16

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 9, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION		SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
GROUND SURFACE ELEVATION: 869.8								
1	868.8	0-17": Dark brown SILT, little sand and clay, trace organics (TOPSOIL)	1-AU					
2	867.8	Brown SILT, little sand, trace clay, damp						
3	866.8							
4	865.8	Light brown SILT, little sand, trace clay, damp	2-SS	7			14	
5	864.8							
6	863.8		3-SS	4			8	
7	862.8							
8	861.8	Brown clayey SAND, little gravel, moist						
9	860.8		4-SS	33				
10	859.8							
11	858.8	Tan weathered SANDSTONE						
12	857.8		5-SS	52				
13	856.8							
14	855.8		6-SS	50/1.5"				
15	854.8							
16	853.8	END OF BORING @ 14.7± FEET (Auger refusal at 14.7 feet due to sandstone)						
17	852.8							
18	851.8							
19	850.8							
20	849.8							
21	848.8							
22	847.8							
23	846.8							
24	845.8							
25	844.8							
26	843.8							
27	842.8							
28	841.8							
29	840.8							
30	839.8							
31	838.8							
32	837.8							
33	836.8							
34	835.8							
35	834.8							
36	833.8							
37	832.8							
38	831.8							
39	830.8							
40	829.8							
41	828.8							
42	827.8							
WATER LEVEL OBSERVATIONS:			ADDITIONAL COMMENTS:					
During drilling: None Observed			-No groundwater encountered while drilling or upon completion.					
Upon completion: None Observed								
Depth/Delay: NA								
Caved at: 6.6± feet (EL. 863.2±)								

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 17

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 12, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS					
GROUND SURFACE ELEVATION: 902.7												
1	901.7	0-10": Dark brown SILT, with clay and organics, trace sand (TOPSOIL)										
2	900.7	1-AU										
3	899.7											
4	898.7	2-SS	17			5						
5	897.7											
6	896.7	3-SS	20			4						
7	895.7	Brown SAND, with gravel, little clay, damp										
8	894.7											
9	893.7	4-SS	69									
10	892.7	Tan weathered SANDSTONE										
		5-SS	50/0.5									
11	891.7	END OF BORING @ 10.1± FEET (Auger refusal at 10.1 feet due to sandstone)										
12	890.7											
13	889.7											
14	888.7											
15	887.7											
16	886.7											
17	885.7											
18	884.7											
19	883.7											
20	882.7											
21	881.7											
22	880.7											
23	879.7											
24	878.7											
25	877.7											
26	876.7											
27	875.7											
28	874.7											
29	873.7											
30	872.7											
31	871.7											
32	870.7											
33	869.7											
34	868.7											
35	867.7											
36	866.7											
37	865.7											
38	864.7											
39	863.7											
40	862.7											
41	861.7											
42	860.7											
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 6.1± feet (EL 896.6±)			ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.									

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 18

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 8, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS	
GROUND SURFACE ELEVATION: 896.1								
1	895.1 0-10": Brown silty, clayey SAND, with sandstone fragments (FILL)	1-AU						
2	894.1 Brown SILT, little clay and sand, damp							
3	893.1							
4	892.1	2-SS	50/6"					
5	891.1							
6	890.1 Tan weathered SANDSTONE	3-SS	50/4"					
7	889.1							
8	888.1							
9	887.1	4-SS	50/5"					
10	886.1	5-SS	50/5"					
11	885.1							
12	884.1							
13	883.1							
14	882.1							
15	881.1							
16	880.1							
17	879.1							
18	878.1							
19	877.1							
20	876.1							
21	875.1							
22	874.1							
23	873.1							
24	872.1							
25	871.1							
26	870.1							
27	869.1							
28	868.1							
29	867.1							
30	866.1							
31	865.1							
32	864.1							
33	863.1							
34	862.1							
35	861.1							
36	860.1							
37	859.1							
38	858.1							
39	857.1							
40	856.1							
41	855.1							
42	854.1							
END OF BORING @ 10.1± FEET (Auger refusal at 10.1 feet due to sandstone)								
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 5.4± feet (EL. 890.7±)		ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.						

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 19

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 8, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS	
	GROUND SURFACE ELEVATION: 891.1							
1	890.1	0-10": Brown silty, clayey SAND, with sandstone fragments (FILL)						
2	889.1	1-AU						
3	888.1	Brown SILT, little clay and sand, damp						
4	887.1	2-SS	38			5		
5	886.1	Yellowish brown SAND, damp						
6	885.1	3-SS	67					
7	884.1	Tan weathered SANDSTONE						
8	883.1							
9	882.1							
10	881.1							
11	880.1							
12	879.1							
13	878.1							
14	877.1	END OF BORING @ 13.1± FEET (Auger refusal at 13.1 feet due to sandstone)						
15	876.1							
16	875.1							
17	874.1							
18	873.1							
19	872.1							
20	871.1							
21	870.1							
22	869.1							
23	868.1							
24	867.1							
25	866.1							
26	865.1							
27	864.1							
28	863.1							
29	862.1							
30	861.1							
31	860.1							
32	859.1							
33	859.1							
34	857.1							
35	856.1							
36	855.1							
37	854.1							
38	853.1							
39	852.1							
40	851.1							
41	850.1							
42	849.1							
WATER LEVEL OBSERVATIONS:		ADDITIONAL COMMENTS:						
During drilling: None Observed		-No groundwater encountered while drilling or upon completion.						
Upon completion: None Observed								
Depth/Delay: NA								
Caved at: 7± feet (EL 884.1±)								

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 20

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 8, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION		SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
	GROUND SURFACE ELEVATION: 893.4							
1	892.4	0-19": Brown silty, clayey SAND, with sandstone fragments (FILL)	1-AU					
2	891.4							
3	890.4							
4	889.4							
5	888.4	Tan weathered SANDSTONE	2-SS	50/1.5"				
6	887.4							
7	886.4							
8	885.4							
9	884.4			3-SS	65			
10	883.4	END OF BORING @ 9.1± FEET (Auger refusal at 9.1 feet due to sandstone)	4-SS	50/1"				
11	882.4							
12	881.4							
13	880.4							
14	879.4							
15	878.4							
16	877.4							
17	876.4							
18	875.4							
19	874.4							
20	873.4							
21	872.4							
22	871.4							
23	870.4							
24	869.4							
25	868.4							
26	867.4							
27	866.4							
28	865.4							
29	864.4							
30	863.4							
31	862.4							
32	861.4							
33	860.4							
34	859.4							
35	858.4							
36	857.4							
37	856.4							
38	855.4							
39	854.4							
40	853.4							
41	852.4							
42	851.4							
WATER LEVEL OBSERVATIONS: During drilling: None Observed Upon completion: None Observed Depth/Delay: NA Caved at: 4.5± feet (EL 888.9±)			ADDITIONAL COMMENTS: -No groundwater encountered while drilling or upon completion.					

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.



midwest engineering services, inc.

SOIL BORING LOG: B - 21

Project: TID #5 Improvements
 Location: Prescott, Wisconsin

Project No.: 4-73027
 Drill Date: March 8, 2007
 Drilled by: Joe Black

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS					
GROUND SURFACE ELEVATION: 881.2												
1	880.2	0-6": Brown SILT, mixed with dark brown SILT, little clay, trace sand (FILL)										
2	879.2	6-20": Brown SILT, little sand, trace clay, damp										
3	878.2											
4	877.2											
5	876.2											
6	875.2	Tan weathered SANDSTONE										
7	874.2							3-SS	50/4"			
8	873.2											
9	872.2							4-SS	50/1"			
10	871.2							5-SS	50/1"			
11	870.2	END OF BORING @ 10.1± FEET (Auger refusal at 10.1 feet due to sandstone)										
12	869.2											
13	868.2											
14	867.2											
15	866.2											
16	865.2											
17	864.2											
18	863.2											
19	862.2											
20	861.2											
21	860.2											
22	859.2											
23	858.2											
24	857.2											
25	856.2											
26	855.2											
27	854.2											
28	853.2											
29	852.2											
30	851.2											
31	850.2											
32	849.2											
33	848.2											
34	847.2											
35	846.2											
36	845.2											
37	844.2											
38	843.2											
39	842.2											
40	841.2											
41	840.2											
42	839.2											
WATER LEVEL OBSERVATIONS:		ADDITIONAL COMMENTS:										
During drilling: None Observed		-No groundwater encountered while drilling or upon completion.										
Upon completion: None Observed												
Depth/Delay: NA												
Caved at: 7± feet (EL 874.2±)												

Note: Lines of stratification represent an approximate boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.

GENERAL NOTES

SAMPLE IDENTIFICATION

Visual soil classifications are made in general accordance with the Unified Soil Classification System on the basis of textural and particle size categorization, and various soil behavior characteristics. Visual classifications should be substantiated by appropriate laboratory testing when a more exact soil identification is required to satisfy specific project applications criteria.

PARTICLE SIZE±

Boulders: 8 inches	Coarse Sand: 2 to 4 mm	Silt: 0.005 to 0.074 mm
Cobbles: 3 to 8 inches	Medium Sand: 0.42 to 2 mm	Clay: -0.005 mm
Gravel: 5 mm to 3 inches	Fine Sand: 0.074 to 0.42 mm	

DRILLING & SAMPLING SYMBOLS

SS: Split-spoon, 2" O.D. by 1 3/8" I.D.	RB: Roller Bit
ST: Shelby Tube, 2" O.D. or 3" O.D., as noted in text	WS: Wash Sample
AU: Auger Sample	BS: Bag Sample
DB: Diamond Bit	HA: Hand Auger
CB: Carbide Bit	

SOIL PROPERTY SYMBOLS

N: Standard penetration count, indicating number of blows of a 140 lb. hammer with a 30 inch drop, required to advance a split-spoon sampler one foot.		
Qu: Unconfined compressive strength, tons per square foot (tsf)		
Qp: Calibrated hand penetrometer resistance, tsf		
MC: Moisture content, %		
LL: Liquid Limit	PL: Plastic Limit	PI: Plasticity Index
Dd: Dry Density, pounds per cubic foot (pcf)		
PID: Photoionization Detector (Hnu meter) volatile vapor level, ppm		

SOIL RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

NON-COHESIVE SOILS		COHESIVE SOILS		
Classifier	N-Value Range	Classifier	Qu Range (tsf)	N-Value Range
very loose	0-3	very soft	0-0.25	0-2
loose	3-7	soft	0.25-0.5	2-5
medium dense	7-15	medium stiff	0.5-1.0	5-10
dense	15-38	stiff	1.0-2.0	10-14
very dense	38+	very stiff	2.0-4.0	14-32
		hard	4.0+	32+

GROUNDWATER



: Approximate Groundwater level at time noted on soil boring log, measured in open borehole unless otherwise noted. Groundwater levels often vary with time, and are affected by soil permeability characteristics, weather conditions, & lateral drainage conditions.