Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

July 14, 2009

SUBJECT: FAU 1004 (Bluff Avenue)
Project M-9003(168)
Section 08-00079-02-FP (LaGrange)
Cook County
Contract No. 63149
Item 151
July 31, 2009 Letting
Addendum (A)

TO PROSPECTIVE BIDDERS:

Due to clarify information necessary to revise the following:

Proposal – Added Soil Boring Report to the special provisions.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

Charles Ingersoll
Engineer of Design and Environment

By: Ted B. Walschleger
Engineer of Project Development
and Implementation

0

Revised 7-14-09

PAVEMENT AND SOIL INVESTIGATION REPORT

Proposed Bluff Avenue Improvements and Washington Avenue Utility Construction

PREPARED FOR

Village of LaGrange
c/o Heuer & Associates
Mr. Thomas A. Heuer, P.E.
9600 47th Street
McCook, Illinois 60525

Prepared By

CGMT, Inc.

May 30, 2006

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
♦Phone (630) 595-1111 ♦ Fax (630) 595-1110

May 30, 2006

Village of LaGrange
c/o Heuer & Associates
Mr. Thomas A. Heuer, P.E.
9600 47th Street
McCook, Illinois 60525

RE: Report of Pavement Investigation and Utility Construction
Proposed Bluff Ave. and Washington Ave.
LaGrange, Illinois
CGMT Project No. 06G0162

Dear Mr. Heuer:

Construction & Geotechnical Testing Materials, Inc. has completed the pavement investigation within the proposed Bluff Avenue pavement improvements and Washington Avenue utility construction, in LaGrange, Cook County, Illinois.

The existing pavements typically consist of a variable thickness of bituminous concrete (hot mix asphalt or HMA) surface course over a Portland cement concrete base course.

Coring activities were performed during the week of April 3, 2006. CGMT mobilized a drill rig to the project area to collect samples of pavement and the underlying soil along Bluff Ave, and soil borings drilled to refusal for the Washington Ave storm water sewer. .

The report of the investigation including summaries of our findings follows this cover letter. Please do not hesitate to contact our offices if you have any questions regarding this investigation or any of the information provided in the report.

Respectfully,
CONSTRUCTION & GEOTECHNICAL MATERIAL TESTING, INC.

Mark Waxali, P.E.
Project Engineer

MARK Z. WAXALI
062-050947
LICENSED
PROFESSIONAL
ENGINEER
ILLINOIS
EXP: 11/2007

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ATTACHMENTS

PAVEMENT AND SOIL INVESTIGATION REPORT
PROPOSED BLUFF AVENUE IMPROVEMENTS AND WASHINGTON AVENUE UTILITY CONSTRUCTION
LaGrange, Illinois

May 30, 2006

1.0 INTRODUCTION

Construction & Geotechnical Material Testing, Inc. (CGMT) has completed a pavement and soil investigation for the proposed Bluff Avenue reconstruction and the Washington Avenue utility installation (collectively referred to as the 'improvements') located in LaGrange, Illinois. The proposed improvements are for the Bluff Avenue alignment bounded Burlington Avenue to the north and Benton Avenue to the south. Seven soil borings extending to depths of six feet below the existing pavement surface were drilled on the proposed project site between April 4 and April 6, 2006. Three additional borings extending to depths of 17 to 23 feet were drilled on Washington Avenue between Cossitt Avenue and Maple Avenue, the proposed alignment of the utility construction. A diagram identifying the approximate locations of the soil borings is included with this report as Attachment 1.

The purposes of this report are to describe the existing pavement and soil conditions, to document soil characteristics and strata thicknesses encountered at the boring locations, and to provide recommendations for the planned improvements.

2.0 PROJECT DESCRIPTION

The improvements are reportedly to consist of the removal and replacement of the existing pavement. The project may also include upgrading the surface water drainage system currently present on Bluff Avenue. The Washington Avenue utility installation is reportedly to consist of the installation of a storm water sewer. Details associated with the storm water sewer design were not made available to CGMT.

3.0 SUBSURFACE EXPLORATION AND LABORATORY TESTING

CGMT scheduled a utility location within the alignment of the proposed improvements prior to initiating any intrusive drilling activities, as required by the Illinois state law, to

3.2 Laboratory Testing

Laboratory tests were performed on a number of soil samples collected during the field investigation. These tests consisted of the following:

- Moisture content in accordance with ASTM D2216 – performed on all soil samples collected.
- Atterberg limits tests in accordance with ASTM D4318 – performed on three samples from borings made within the utility construction alignment.
- Moisture-Density relationship (Standard Proctor Test) in accordance with AASHTO T 99 – performed on one sample collected from the Bluff Avenue alignment.
- Grain Size analysis in accordance with ASTM D422 – performed on one sample from the Bluff Avenue alignment.
- Illinois Bearing Ratio performed in accordance with ASTM D1883 – performed on one sample from the Bluff Avenue alignment.
- Calibrated hand-held penetrometer was used to estimate the approximate unconfined compressive strength of the native cohesive soil samples.

Laboratory test results are provided in Attachment 4.

The calibrated penetrometer was correlated with unconfined compression tests and provides a better estimate of soil consistency than visual examination and standard penetration test data.

As part of the testing program, the samples were examined in the laboratory and classified in accordance with the attached General Notes and the Unified Soil Classification System based on the material's texture and plasticity. The estimated group symbols for the Unified Soil Classification System are shown on the boring logs, and a brief description of the Unified System is included with this report in Attachment 5.

verify that no conflicts existed between the boring locations and subsurface utilities. Intrusive activities associated with the subsurface investigation were initiated after the utility locate had been completed by the participating utility companies.

3.1 Subsurface Exploration

The boring locations were identified and staked in the field by Heuer and Associates (Heuer) personnel. Heuer also provided CGMT with the boring location plan.

Prior to advancing each of the Bluff Avenue borings, CGMT collected core samples of pavement materials using a Milwaukee 20-amp two-speed coring motor with 4.25" O.D. thin-wall diamond masonry bits. The test cores were labeled, placed in individual containers and delivered to the CGMT laboratory for further review and detailed condition assessments. Detail descriptions of the cores are provided in Attachment 2.

The soil borings were drilled by CGMT between April 4 and April 6, 2006 using a truck-mounted rotary drilling rig (CME 45C). The borings were advanced using continuous flight, hollow stem augers. Representative soil samples were obtained using a 2-inch diameter split-spoon sampler and procedures in general accordance with ASTM Specification D-1586 for performing Standard Penetration Tests in soil. In the split-spoon sampling procedure, a standard 2-inch O.D. (outside diameter) split-spoon sampler is driven into the ground with a 140 pound hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18 inch penetration is considered the standard penetration resistance value (N). These values are indicated on the boring logs at the depths of occurrence. Representative samples were collected from the split-spoon sampler, placed in glass jars, sealed, labeled, and transported to the CGMT geotechnical laboratory for testing and classification.

Boring logs of each boring were prepared by the drill crew. These logs included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. Final boring logs included with this report (Attachment 3) represent an interpretation of the field logs and include modifications based on laboratory observation and tests of selected soil samples.

4.0 SITE AND SUBSURFACE CONDITIONS

4.1 Site Description

The proposed project consists of planned pavement improvements on Bluff Avenue from Burlington Avenue to Benton Avenue, in LaGrange, Cook County, Illinois. The improvements are reportedly to consist of reconstruction of the existing pavement system. Additionally, the construction of a storm water sewer is planned for a portion of Washington Avenue.

The immediate project area is surrounded by a combination of generally mature medium-density residential units. Commercial development is present within portions of the east side of Bluff Road.

4.2 Pavement Conditions

The pavement within the project area consists essentially of either a single or multiple layers of asphalt overlying either a Portland Cement Concrete (PCC) or an aggregate base course. The individual pavement core data obtained from the locations identified on the Boring Location Diagram are presented in detail in Attachment 2. A concrete curb and gutter with storm drain structures provides surface water drainage for the project area pavements.

The pavements display various patterns and degrees of distress, ranging from "alligator" cracking to transverse and random, dendritic cracking. The mechanisms of cracking likely range from aging and oxidation under sunlight to reflection cracking of the underlying pavement layers, particularly where a Portland cement concrete base course is present.

The bond between the various bituminous material layers in all of the test cores was generally good. Where the Hot Mix Asphalt (HMA) wearing course was underlain by a concrete base course, the bond between the overlying HMA wearing course and the concrete was typically poor.

The bituminous concrete courses (surface and binder) typically ranged between 1.31 inches at B-01 to 5.43 inches B-09 thick, over either PCC or gravel (IDOT coarse aggregate CA-6).

A PCC layer was encountered at all but two locations (B-09 and B-10). Where encountered, the PCC was typically in good condition containing trace to some amounts of medium to large voids. PCC ranged in thickness from 7.56 inches at B-04 to 9.03 inches at B-01. In all cases the PCC contained reinforcement wire mesh.

4.3 Soil Conditions – Bluff Avenue

All borings were advanced to a depth of approximately 6 feet beneath the top of the pavement. Topsoil was encountered at all locations except B-01, B-03, and B-04. The topsoil typically overlies a brown and gray to brown silty clay soil. This silty clay typically possessed moisture content percentages ranging from the mid teens to low 20s.

This topsoil is typically subject to medium to high pumping/rutting when saturated and exposed to traffic wheel loadings, and have a high to very high frost potential.

Conditions encountered at each boring location are indicated on the attached soil boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types. The transition between soil types is actually gradual. Based on the results of the borings, subsurface conditions on the project site can be summarized as follows.

4.4 Soil Conditions – Washington Avenue

Four borings (B-08, B-09, B-10, and B-11) were made within the planned alignment of the storm water sewer. Asphalt ranging in thickness from 1.5 to 5.3 inches, overlying IDOT CA-6 aggregate was present at all locations except B-08. Remnants of the original topsoil were present beneath the pavement materials at boring B-08, B-09 and B-11. This topsoil appears to have been removed as part of pavement construction at the other boring location.

The immediate subgrade soils, below the buried topsoil consist of a brown and gray silty clay. This material is generally of a very stiff consistency possessing unconfined compressive strengths of 2.5 to 3.5 tons per square foot. This silty clay typically extended to depths of approximately 5.5 feet below existing ground surface. This soil type exhibited moisture contents ranging from 18.5 to 19.8 percent.

Noncohesive soil types were encountered at all three boring locations beneath the silty clay soil. These materials, having Unified Soil Classification System designations of SC,

SM, and SW were present to the end of each soil boring. These materials were typically of dense to very dense in consistency (as illustrated by the 'N' values obtained during the SPT tests). The 'N' values were found to increase with depth.

All borings made within this sewer alignment were advanced until auger refusal occurred (depths of 17, 22, 18, and 23 feet at borings B-08, B-09, B-10, and B-11, respectively).

Detailed descriptions of the subsurface conditions encountered at the individual boring locations are presented in the boring logs that are included in Attachment 3. Results of laboratory testing are also presented on the boring logs.

4.5 Subsurface Water Conditions

The borings were monitored while drilling and after completion for the presence and level of groundwater. No water was encountered in the shallow borings while advancing or immediately after the completion of all borings. Water was encountered in the deep borings made within the storm water sewer alignment, between 11 and 12 feet below surface. In all cases water was encountered within a non cohesive soil type.

It should be recognized that fluctuations of the groundwater table may occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Also, trapped or "perched" water can occur in the more pervious sand or silt seams/layers often found within the cohesive fill and/or native deposits. Therefore, groundwater levels during construction or at other times in the life of the structures may be different than indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

5.0 ENGINEERING ANALYSIS AND RECOMMENDATIONS

5.1 Pavement Construction Considerations

The cohesive organic soils encountered at the majority of the core locations are reportedly of medium to high (F3 to F4) frost susceptibility (referenced in the Soil Survey of DuPage and Part of Cook Counties, Illinois, USDA, SCS, May 1979, S012.) When the silty clay soils are saturated and disturbed, such as by construction traffic, they will "pump" and exhibit highly unstable conditions. The black silty clay (former topsoil) soil encountered

beneath the pavement materials should be undercut and replaced with free draining granular material.

The brown and gray clayey silt soil typically encountered beneath the topsoil is a structurally suitable subgrade material for roadway construction. The roadway subbase should be constructed of free draining granular material in accordance with the Illinois Department of Transportation specifications.

Shallow excavations made within the brown and gray silty clay for sewers, etc., along Bluff Avenue are expected to maintain near vertical slopes, however, proper sloping, or bracing of excavations must be provided to adequately protect construction personnel and adjacent structures/properties in accordance with legal and safety requirements. **Slopes for excavations should be protected, following the appropriate OSHA (Occupational Safety and Health Administration, 29 CFR PART 1926) regulations, state and local guidelines and governing statutes/ordinances as a minimum.**

Illinois Department of Transportation (IDOT) Bureau of Design recommends an Illinois Bearing Ratio (IBR) value of 2 for soils classed as silty clays of medium to high plasticity. The laboratory test performed on a collected soil sample from within the Bluff Avenue alignment indicates that the IBR value for the brown silty clay soil is 2.7. Pavement design should be performed based on this laboratory derived value.

5.2 Utility Construction Considerations

Details associated with the proposed storm water sewer (invert elevation, depth of the sewer, pipe diameters, pipe material, etc.) were not provided to CGMT at the time of the field investigation.

The sewer should be installed in trenches excavated to the designed elevations. Bedding materials conforming to the engineer's specifications should be placed a minimum of 6 inches below the invert elevations of piping. Select backfill materials conforming to IDOT CA-6 should be placed above the pipe. This material should be placed in 6-inch lifts and hand tamped until 12-inches of CA-6 has been placed over the pipe. Thereafter compaction may be performed using mechanical means.

Backfill materials used to backfill excavated trenches to the required elevations should be clean soil free of debris and cobbles greater than 3-inches in diameter. The placement and compaction of backfill materials shall be performed in a manner that prevents damage to the installed sewer pipe.

Excavations along the Washington Avenue sewer alignment will be made within noncohesive soils. These soils cannot be benched. These excavations cannot be sloped because of the spatial constraints placed by the presence of utilities and properties within relative close proximity of the planned sewer location. As such, the use of trench boxes or other appropriate shoring techniques should be designed and implemented to facilitate sewer installation while maintain compliance with OSHA and other state and local guidelines and regulations. The design of excavations needed to install the proposed sewer is beyond the scope of this report.

Excavations that extend below a depth of 10 feet may require dewatering. The actual excavation depth will dictate dewatering techniques that may be utilized. These techniques may be as simple as the use of mobile submersible pumps installed at strategically located sumps, or an intricately designed series of well points to achieve groundwater drawdown. The design of a dewatering system is beyond the scope of this report.

5.3 Earthwork

The subgrade for the planned pavement installation should be proof rolled. Proof rolling aids in documenting the structural integrity of the completed subgrade and is a means of identifying and delineating soft or disturbed areas that may exist at or near the exposed subgrade level. Unsuitable areas observed at this time should be improved by undercutting and replacement with suitable compacted fill. Proof rolling may be accomplished with a fully loaded, tandem-axle dump truck or other equipment providing an equivalent subgrade loading. A minimum gross weight of 25 tons is recommended for the proof rolling equipment. Proof rolling should be performed in the presence of the Owner's representative and the geotechnical engineer so that unstable subgrade areas may be properly evaluated.

The importation and placement of fill may be necessary to achieve proposed pavement subgrade elevations. Fill materials should be placed and compacted in lifts of 9 inches or

less in loose thickness. Fill placed below the base elevations of subsurface structures such as vaults should be compacted to at least 95% of the material's maximum dry density as determined by a modified Proctor test. All new fill placement and compaction should be observed and tested by a geotechnical engineer.

Upon completion of the filling operation, care should also be taken to maintain the subgrade moisture content prior to pavement construction. If the subgrade should become frozen, desiccated, saturated or disturbed, the affected material should be removed or, in the case where the subgrade becomes saturated, these materials should be scarified, moisture conditioned and recompacted.

Subgrades for supporting the storm water sewer should be inspected prior to the installation of the pipe segments. Unsuitable areas observed after the required excavation has been completed should be by mitigated by undercutting and replacement with suitable compacted fill.

5.4 General Recommendations

All excavations should comply with the requirements of OSHA 29CFR, Part 1926, Subpart P, "Excavations" and its appendices, as well as other applicable codes. This document states that the excavation safety is the responsibility of the contractor. Reference to this OSHA requirement should be included in the project specifications.

6.0 GENERAL COMMENTS

The Owner should allow for the review of existing conditions during construction by a geotechnical engineer. This engineer should provide testing and observation during excavation, grading, and construction phases of the project. The purpose of these services would be to observe and assess the soil conditions encountered during construction, evaluate the applicability of the recommendations presented in this report to the soil conditions encountered, and recommend appropriate changes in design or construction procedures if conditions differ from those described herein.

The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations which may occur between

borings or across the site. The nature and extent of such variations may not become evident until construction. If variations appear, it will be necessary to reevaluate the recommendations of this report.

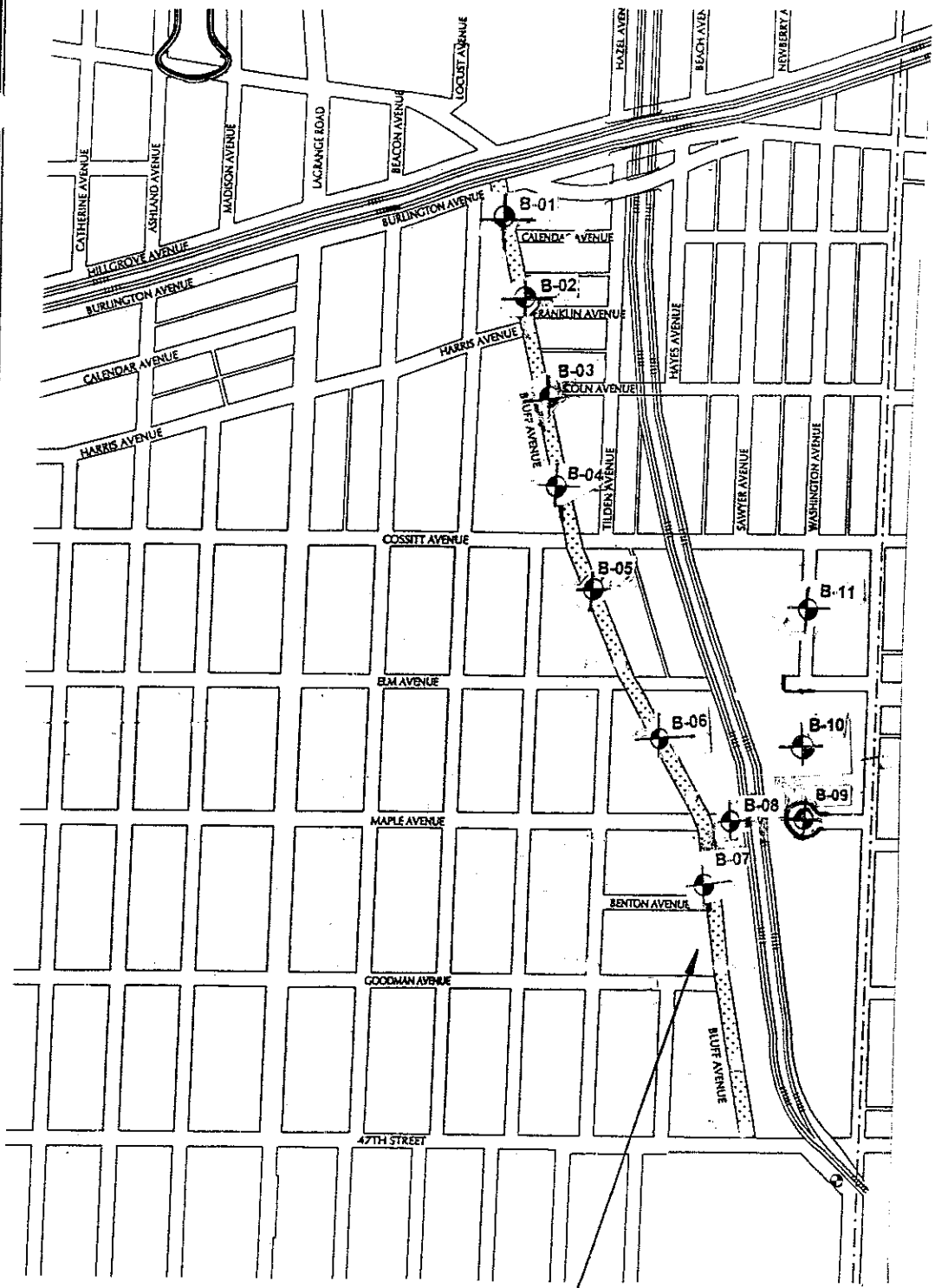
The scope of services for this project does not include either specifically or by implication any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken.

The scope of services for this project did not include the design of a shoring system for the proposed sewer installation. **At the time of the preparation of this report details of the planned pavement improvements and details of the sewer installation were not made available to CGMT.**

This report has been prepared for the exclusive use of Heuer and Associates and the Village on LaGrange for specific application to the project discussed herein. The report has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either expressed or implied, are intended or made. In the event that changes in the nature, design, or location of the project as outlined in this report, are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed by the certifying engineer, and the certifying engineer either verifies or modifies the conclusions of this report in writing.

ATTACHMENT 1

Boring Location Plan



Approximate
Coring & Boring
Location

Not to Scale

Coring and Boring Location Diagram for
Heuer Associates
Bluff Ave. Improvement and Washington Ave. Utility Construction. LaGrange,Illinois

ATTACHMENT 2

Descriptions of Pavement Cores

Detail Descriptions of Cores
Bluff Avenue Investigation
LaGrange, IL
Prepared for Heuer and Associates
May 2006

Core No.	Core Location[1]	Pavement Profile				Total Depth of Core (inches)
		Layer Type	Layer Thickness (inches)	Layer Descriptions	Unconfined Compressive Strength (tsf)[6, 7]	
B-01	North of Calendar Ave.	HMA - Surface Course	1.31	Surface course, trace small to medium voids, poor bond to PCC.		10.34
		PCC	9.03	Reinforcement wire mesh present 3.25" from top of layer. Some medium to large voids.		
		Soil	--	Brown and gray silty clay, trace medium to fine sand, stiff, low plasticity, moist (CL).	1.5	
B-02	North of Ranklin Ave.	HMA - Surface Course	1.55	Surface course, trace small to medium voids, poor bond to PCC.		9.57
		PCC	8.02	Reinforcement wire mesh present 3.75" from top of layer. Trace small voids.		
		Soil	--	Dark brown and black silty clay, trace coarse to fine sand, stiff, low plasticity, moist (CL)	1.5	
B-03	South of Lincoln Ave.	HMA - Surface Course	1.48	Surface course, trace small to medium voids, poor bond to PCC.		9.10
		PCC	7.62	Reinforcement wire mesh present 3.75" from top of layer. Trace small voids.		
		Soil	--	Brown and gray silty clay, trace medium to fine sand, stiff to very stiff, low plasticity, moist (CL).	2.0	
B-04	North of Cossitt Ave	HMA - Surface Course	1.70	Surface course, trace small to medium voids, poor bond to lower layer.		9.26
		PCC	7.56	Reinforcement wire mesh present 3.75" from top of layer. Trace small to medium voids.		
		Soil	--	Brown and gray silty clay, trace medium to fine sand, stiff, low plasticity, moist (CL).	1.5	
B-05	South of Cossitt Ave.	HMA - Surface Course	1.62	Surface course, trace small to medium voids, good bond to binder course.		12.16
		HMA - Binder Course	2.68	Binder course, trace small voids, poor bond to PCC.		
		PCC	7.86	Reinforcement wire mesh present 4.5" from top of layer. Trace small to medium voids.		
		Soil	--	Black silty clay, trace coarse to fine sand, stiff to very stiff, low plasticity, moist. (CL), topsoil.	2.5	
B-06	South of Elm Ave.	HMA - Surface Course	1.80	Surface course, some small to medium voids, good bond to binder course.		12.73
		HMA - Binder Course	2.48	Binder course, trace small voids, poor bond to PCC.		
		PCC	8.45	Reinforcement wire mesh present 5.5" from top of layer. Trace small to medium voids.		
		Soil	--	Black silty clay, trace coarse to fine sand, stiff to very stiff, low plasticity, moist. (CL), topsoil	2.5	
B-07	North of Benton Ave.	HMA - Surface Course	1.53	Surface course, some small to medium voids, good bond to binder course.		11.91
		HMA - Binder Course	2.08	Binder course, no voids, poor bond to PCC.		
		PCC	8.30	Some medium to large voids.		
		Soil	--	Black silty clay, trace coarse to fine sand, stiff, low plasticity, moist. (CL), topsoil.	1.5	

Detail Descriptions of Cores
Bluff Avenue Investigation
LaGrange, IL
Prepared for Heuer and Associates
May 2006

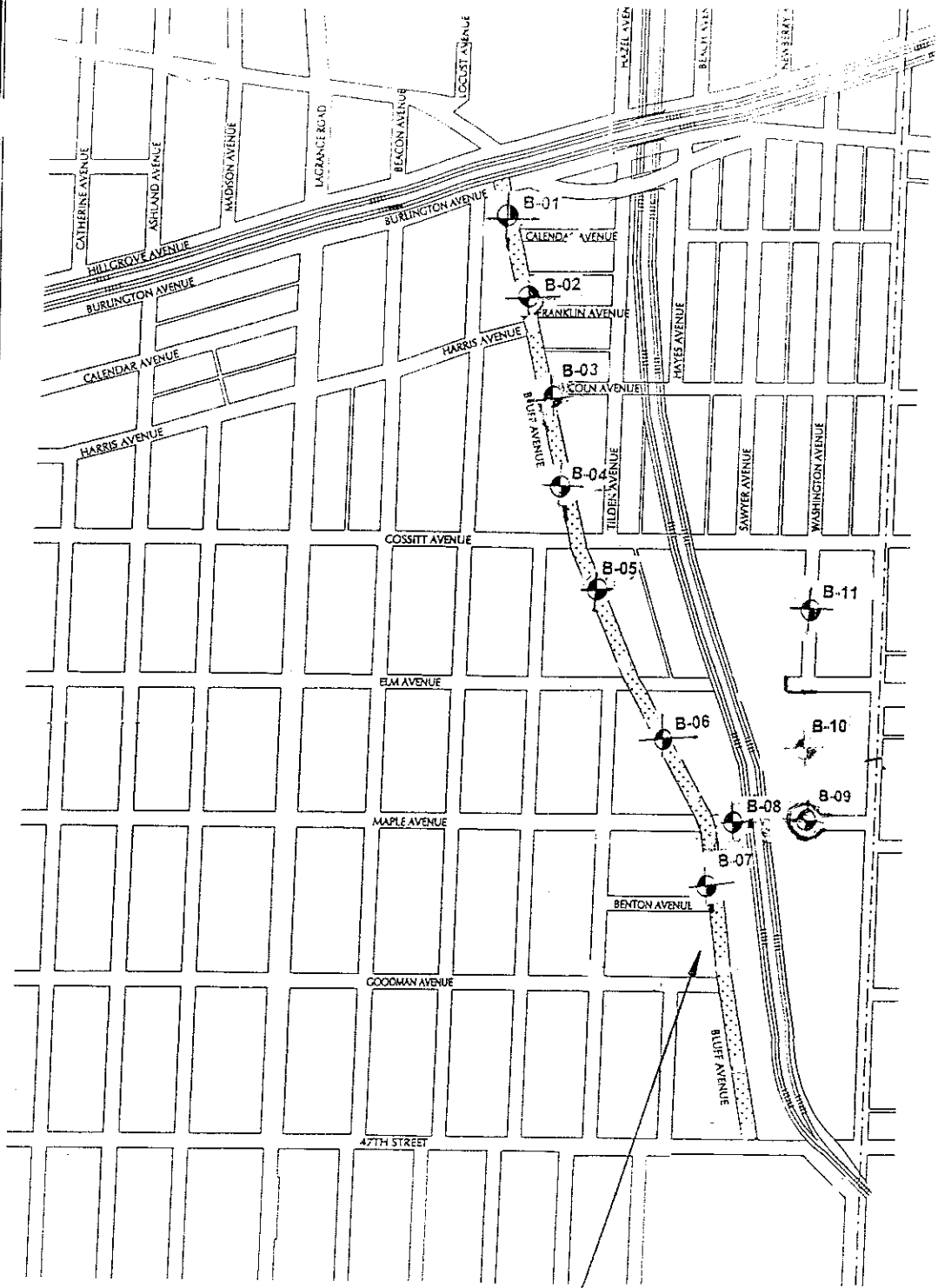
Core No.	Core Location[1]	Pavement Profile				Total Depth of Core (inches)
		Layer Type	Layer Thickness (inches)	Layer Descriptions	Unconfined Compressive Strength (tsf)[6, 7]	
B-09	Maple Ave.	HMA - Surface Course	1.98	Surface course, some small to medium voids, good bond to binder course.		12.93
		HMA - Binder Course	3.45	Binder course, trace small voids, poor bond to gravel.		
		Gravel	7.50	Characteristic IDOT CA-6 aggregate.		
		Soil	--	Dark brown and black silty clay, trace coarse to fine sand, stiff to very stiff, low plasticity, moist (CL)	2.5	
B-10	North of Maple Ave.	HMA - Surface Course	1.50	Surface course, some small to medium voids, good bond to binder course.		11.47
		HMA - Binder Course	1.97	Binder course, trace small voids, poor bond to gravel.		
		Gravel	8.00	Characteristic IDOT CA-6 aggregate.		
		Soil	--	Brown and gray silty clay, trace medium to fine sand, stiff to very stiff, low plasticity, moist (CL).	2.8	

Notes:

1. Core locations depicted on drawings.
2. Medium to fine voids refer to the size of the voids observed along the side of the extracted core
3. HMA means Hot Mix Asphalt.
4. PCC means Portland Cement Concrete.
5. Soil classification based on visual assessment of soil samples collected during field investigation
6. Unconfined compressive strength measured using a calibrated penetrometer.

ATTACHMENT 3

Soil Boring Logs



Approximate Coring & Boring Location

Not to Scale

Coring and Boring Location Diagram for
Heuer Associates
Bluff Ave. Improvement and Washington Ave. Utility Construction. LaGrange,Illinois

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-01
Date: Thursday, April 06, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Asphalt Pavement					
	10"		1.31" of Asphalt , 9.031" P.C.C.					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, stiff to very stiff, low plasticity, moist, (CL)	SS-1 1.0 - 2.5 13" Recovery	3 4 3	16.2	1.5	
	2.0							
	3.0			SS-2 2.5 - 4.0 18" Recovery	2 4 4	22.6	3.0	
	4.0							
	5.0			SS-3 4.0 - 6.0 23" Recovery	2 4 6 10	18.0	3.5	
	6.0		End of boring at 6.0 feet					No water present in boring immediately after drilling
	7.0							Boring backfilled with soil cuttings immediately after drilling
	8.0							
	9.0							IDOT means Illinois Department of Transportation.
	10.0							
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)
During Drilling : None
Immediately After Drilling : None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
762 Larsen Lane Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-02
Date: Thursday, April 06, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Asphalt Pavement					
	9.5"		1.5" Asphalt, 8" P.C.C.					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer
	1.0		Brown and black silty clay, trace coarse to fine sand, trace coarse to fine gravel, stiff, low plasticity, moist, (CL)	SS-1 1.0 - 2.5 12" Recovery	2 3 4	18.6	1.5	
	2.0							
	2.7							
	3.0		Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, very stiff, low plasticity, moist, (CL)	SS-2 2.5 - 4.0 18" Recovery	2 4 5	22.8	2.5	
	4.0							
	5.0			SS-3 4.0 - 6.0 18" Recovery	2 4 5 9	18.8	3.5	
	6.0		End of boring at 6.0 feet.					No water present in boring immediately after drilling.
	7.0							Boring backfilled with soil cuttings immediately after drilling
	8.0							P.C.C. means Portland Cement Concrete.
	9.0							
	10.0							
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)
During Drilling : None
Immediately After Drilling : None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-03
Date: Thursday, April 06, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Asphalt Pavement					
	9.1"		1.5" Asphalt and 7.6" P.C.C.					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, stiff to very stiff, low plasticity, moist (CL)	SS-1 1.0 - 2.5 17" Recovery	4 4 4	19.1	2.0	
	2.0			SS-2 2.5 - 4.0 17" Recovery	3 7 5	23.4	2.75	
	3.0							
	4.0			SS-3 4.0 - 5.5 16" Recovery	2 19 20	12.6	2.0	SS-3 driven on a piece of coarse gravel at 4.5 feet.
	5.0							
	5.5		End of boring at 5.5 feet.					No water present in boring immediately after drilling.
	6.0							
	7.0							Boring backfilled with soil cuttings immediately after drilling
	8.0							
	9.0							P.C.C. means Portland Cement Concrete.
	10.0							
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)
During Drilling : None
Immediately After Drilling : None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-04
Date: Thursday, April 06, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Asphalt Pavement					
	9.3"		1.7" Asphalt and 7.6" P.C.C.					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, stiff to very stiff, low plasticity, moist (CL)	SS-1 1.0 - 2.5 12" Recovery	3 4 5	20.2	1.5	
	2.0			SS-2 2.5 - 4.0 17" Recovery	3 5 7	21.6	2.25	
	3.0							
	4.0			SS-3 4.0 - 5.5 16" Recovery	2 9 12	14.7	2.0	
	5.0							
	5.5		End of boring at 5.5 feet.					No water present in boring immediately after drilling.
	6.0							Boring backfilled with soil cuttings immediately after drilling.
	7.0							P.C.C. means Portland Cement Concrete.
	8.0							
	9.0							
	10.0							
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)
During Drilling : None
Immediately After Drilling : None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-05
Date: Thursday, April 06, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Asphalt Pavement					
			4.3" Asphalt, 7.9" P.C.C.					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	12.2"		Black silty clay, trace coarse to fine sand, very stiff, low plasticity, moist. (CL)	SS-1 1.0 - 2.5 6" Recovery	7 8 4	12.1	2.5	SS-1 driven on a piece of coarse gravel at depth of 13 inches.
	2.0							
	2.5		Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, very stiff, low plasticity, moist. (CL)	SS-2 2.5 - 4.0 15" Recovery	3 5 7	19.4	3.0	
	3.0							
	4.0		Gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, very stiff, low plasticity, moist. (CL)	SS-3 4.0 - 6.0 16" Recovery	2 3 3 7	19.8	2.75	
	5.0							
	6.0		End of boring at 6.0 feet.					No water present in boring immediately after drilling.
	7.0							Boring backfilled with soil cuttings immediately after drilling.
	8.0							P.C.C. means Portland Cement Concrete.
	9.0							
	10.0							
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)
During Drilling : None
Immediately After Drilling : None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-06
Date: Thursday, April 06, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Asphalt Pavement					
			4.3" Asphalt. 8.4" P.C.C.					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	12.5"		Black silty clay, trace coarse to fine sand, very stiff, low plasticity, moist. (CL)	SS-1 1.0 - 2.5 6" Recovery	3 5 5	13.7	2.75	
	2.0							
	2.5		Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel very stiff low plasticity moist (CL)	SS-2 2.5 - 4.0 12" Recovery	3 4 4	22.4	2.75	
	3.0							
	4.0			SS-3 4.0 - 6.0 18" Recovery	2 7 5 5	26.3	2.25	
	5.0							
	6.0		End of boring at 6.0 feet.					No water present in boring immediately after drilling.
	7.0							Boring backfilled with soil cuttings immediately after drilling.
	8.0							P.C.C. means Portland Cement Concrete.
	9.0							
	10.0							
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor: CGMT, Inc.

Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling

Drilling Equipment: CME-45C Truck Mounted Drill Rig

REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)

During Drilling : None

Immediately After Drilling : None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-07
Date: Thursday, April 06, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
			Asphalt Pavement					
	0.0		3.6" Asphalt, 8.3" P.C.C.					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Black silty clay, trace fine sand, stiff, low plasticity, moist. Topsoil (CL)	SS-1 1.0 - 2.5 8" Recovery	4 4 4	16.4	1.5	
	2.0							
	2.5		Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, very stiff, low plasticity, moist (CL)	SS-2 2.5 - 4.0 14" Recovery	2 4 5	22.2	2.75	
	3.0							
	4.0		Brown silty clay, trace coarse to fine sand, trace coarse to fine gravel, very stiff, low plasticity, moist. (CL)	SS-3 4.0 - 6.0 16" Recovery	4 6 10 11	21.0	4.0	
	5.0							
	6.0		End of boring at 6.0 feet.					No water present in boring immediately after drilling.
	7.0							Boring backfilled with soil cuttings immediately after drilling.
	8.0							P.C.C. means Portland Cement Concrete.
	9.0							
	10.0							
	11.0							
	12.0							
	13.0							
	14.0							
	15.0							
	16.0							
	17.0							
	18.0							
	19.0							
	20.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)
During Drilling : None
Immediately After Drilling : None

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-08
Date: Wednesday, April 05, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Asphalt Pavement					
			IDOT CA-6 aggregate					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	1.0		Black silty clay, trace fine sand, stiff, low plasticity, moist. Topsoil (CL)	SS-1 1.0 - 2.5 11" Recovery	3 4 5	20.9	1.5	
	2.0							
	2.75							IDOT means Illinois Department of Transportation
	3.0		Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, very stiff, low plasticity, moist. (CL)	SS-2 3.5 - 5.0 14" Recovery	3 4 6	18.9	4.0	
	4.0							
	5.0							
	5.5							
	6.0		Brown clayey silt, trace coarse to fine sand, trace coarse to fine gravel, medium dense to dense, poorly graded, wet. (ML)	SS-3 6.0 - 7.5 16" Recovery	7 11 25	39.0		SS-3 driven on a piece of coarse gravel at 7.0 feet.
	7.0							
	8.0		Gray silty coarse to fine sand, some coarse to fine gravel, medium dense, poorly graded, wet. (SM)	SS-4 8.5 - 10.0 12" Recovery	6 9 12	8.4		
	9.0							
	10.2							
	11.0		Gray coarse to fine sand and gravel, well graded, medium dense to very dense, saturated (SW)	SS-5 11.0 - 12.5 14" Recovery	7 27 29	8.3		SS-5 driven on a piece of coarse gravel at 11.5 feet.
	12.0							
	13.0							
	14.0			SS-6 13.5 - 15.0 14" Recovery	4 8 21	10.6		
	15.0							
	16.0			SS-7 16.0 - 17.5 18" Recovery		8.3		
	17.0		End of boring at 17.0 feet.					Auger refusal occurred at 17.0 feet.
	18.0							
	19.0							Boring backfilled with soil cuttings immediately after drilling
	20.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)
During Drilling : 14.0 feet
Immediately After Drilling : 12.0 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-09
Date: Wednesday, April 05, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Symbol	Soil / Rock Description	Sample Type & No. / Depth Interval (Ft) / Recovery (In)	Blow Counts	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Asphalt Pavement 5.3" of Asphalt , 7.5" of IDOT CA-6 aggregate					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
	12.3"		Black and brown silty clay, trace fine sand, very stiff, low plasticity, moist. Topsoil (CL)	SS-1 1.0 - 2.5 9" Recovery	3 5 8	22.2	3.0	IDOT means Illinois Department of Transportation.
	2.0							
	2.75							
	3.0		Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, very stiff, low plasticity, moist. (CL)	SS-2 3.5 - 5.0 12" Recovery	3 4 5	19.8	3.0	SS-2 LL = 46.0 PL = 30.2 PI = 15.8
	4.0							
	5.2							
	6.0		Brown silty coarse to fine sand , some coarse to fine gravel, dense, well graded, wet. (SM)	SS-3 6.0 - 7.5 14" Recovery	13 27 15	8.4		SS-3 driven on a piece of coarse gravel at 6.5 feet.
	7.0							
	8.0		Gray silty clay, some coarse to fine sand, some coarse to fine gravel, very stiff, low plasticity, moist. (CL)	SS-4 8.5 - 10.0 10" Recovery	7 10 9	9.3	3.5	
	9.0							
	10.2							
	11.0		Gray clayey coarse to fine sand and coarse to fine gravel, well graded, dense to very dense, saturated. (SC)	SS-5 11.0 - 12.5 10" Recovery	10 22 19	7.1		SS-5 driven on a piece of coarse gravel at 11.5 feet.
	12.0							
	13.0							
	14.0			SS-6 13.5 - 15.0 15" Recovery	7 16 22	9.6		
	15.0							
	16.0			SS-7 16.0 - 17.5 16" Recovery	21 25 25	6.5		
	17.0							
	18.0							
	19.0			SS-8 18.5 - 20.50 18" Recovery	25 25 17	5.4		
	20.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Wacali, P.E.

Water Level (FL)
During Drilling : 12.0 feet
Immediately After Drilling : 10.0 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-09
Date: Wednesday, April 05, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Symbol	Soil / Rock Description	Sample Type & No. Depth Interval (ft) Recovery (in)	Blow Count	Moisture Content %	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Gray clayey coarse to fine sand and coarse to fine gravel, well graded, very dense, saturated. (SC)					
	21.0							Auger refusal occurred at 22.0 feet.
	22.0		End of boring at 22 feet.					
	23.0							
	24.0							Boring backfilled with soil cuttings immediately after drilling.
	25.0							
	26.0							
	27.0							
	28.0							
	29.0							
	30.0							
	31.0							
	32.0							
	33.0							
	34.0							
	35.0							
	36.0							
	37.0							
	38.0							
	39.0							
	40.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (FL)
During Drilling : 12.0 feet
Immediately After Drilling : 10.0 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
762 Larsen Lane Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-10
Date: Tuesday, April 04, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Sheet 1 of 1

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Asphalt Pavement					
	11.5"		3.5" of Asphalt , 8" of IDOT CA-6 aggregate					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer
	1.0		Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, very stiff low plasticity, moist. (CL)	SS-1 1.0 - 2.5 9" Recovery	3 5 6	18.5	2.75	**SS-1** LL = 36.0 PL = 24.5 PI = 11.5
	2.0							
	3.0							
	4.0			SS-2 3.5 - 5.0 15" Recovery	2 5 7	—	3.5	
	5.0							IDOT means Illinois Department of Transportation.
	5.5							
	6.0		Gray clayey coarse to fine sand and coarse to fine gravel, well graded, medium dense to dense, wet to saturated. (SC)	SS-3 6.0 - 7.5 18" Recovery	6 16 16	8.6		SS-3 driven on a piece of coarse gravel at 7.0 feet.
	7.0							
	8.0							
	9.0			SS-4 8.5 - 10.0 12" Recovery	6 12 16	7.1		
	10.2							
	11.0			SS-5 11.0 - 12.5 14" Recovery	12 20 25	8.0		
	12.0							
	13.0							
	14.0		Gray coarse to fine sand and gravel, well graded, very dense, saturated. (SW)	SS-6 13.5 - 15.0 14" Recovery	16 29 25	11.2		
	15.0							
	16.0			SS-7 16.0 - 17.5 8" Recovery	16 26 30	7.5		
	17.0							
	18.0		End of boring at 19.0 feet.					Auger refusal occurred at 18.0 feet.
	19.0							Boring backfilled with soil cuttings immediately after drilling.
	20.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)
During Drilling : 11.0 feet
Immediately After Drilling : 19.0 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.
762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No.: B-11
Date: Wednesday, April 05, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No.: 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		**Asphalt Pavement**					Unconfined compressive strength of soil samples estimated using a calibrated penetrometer.
			1.5" Asphalt, 5.5" IDOT CA-6 aggregate					
	7"							
			Black silty clay, trace fine sand, very stiff, low plasticity, moist. Topsoil (CL)	SS-1 1.0 - 2.5 9" Recovery	3 5 7	22.2	3.0	IDOT means Illinois Department of Transportation.
	2.2							
			Brown and gray silty clay, trace coarse to fine sand, trace coarse to fine gravel, very stiff, low plasticity, moist (CL)					
	3.0			SS-2 3.5 - 5.0 12" Recovery	3 4 6	19.8	2.5	**SS-2** LL = 41.0 PL = 28.7 PI = 12.3
	4.0							
	5.2							
	6.0		Brown clayey silt, trace coarse to fine sand, trace coarse to fine gravel, medium dense, poorly graded wet. (ML)	SS-3 6.0 - 7.5 14" Recovery	8 11 10	8.4		
	7.0							
	8.0							
			Gray silty coarse to fine sand some coarse to fine gravel medium dense, poorly graded wet. (SM)	SS-4 8.5 - 10.0 10" Recovery	4 8 14	9.3		
	9.0							
	10.2							
	11.0		Gray coarse to fine sand and coarse to fine gravel, well graded, medium dense, saturated (SW)	SS-5 11.0 - 12.5 10" Recovery	8 8 12	7.1		
	12.0							
	12.7							
	13.0							
			Gray clayey coarse to fine sand and coarse to fine gravel, well graded, dense to very dense saturated. (SC)	SS-6 13.5 - 15.0 15" Recovery	12 16 20	9.6		
	14.0							
	15.0							
	16.0			SS-7 16.0 - 17.5 16" Recovery	16 20 22	6.5		
	17.0							
	18.0							
	19.0			SS-8 18.5 - 20.0 18" Recovery	25 25 17	5.4		
	20.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)
During Drilling : 12.0 feet
Immediately After Drilling : 11.0 feet

Soil Boring Log

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:
Heuer and Associates

Boring No : B-11
Date: Wednesday, April 05, 2006
Project: Bluff Avenue Improvements
LaGrange, IL
Project No : 06G0162
Boring Location: See Boring Location Plan
Logged By: Mike Patel
Ground Elevation:

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (in)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	20.0		Gray clayey coarse to fine sand and coarse to fine gravel, well graded dense to very dense, saturated. (SC)					
	21.0			SS-9 21.0 - 22.5 18" Recovery	15 30 20	20.2		
	22.0							
	23.0		End of boring at 23 feet					Auger refusal occurred at 23.0 feet Boring backfilled with soil cuttings immediately after drilling.
	24.0							
	25.0							
	26.0							
	27.0							
	28.0							
	29.0							
	30.0							
	31.0							
	32.0							
	33.0							
	34.0							
	35.0							
	36.0							
	37.0							
	38.0							
	39.0							
	40.0							

Drilling Contractor: CGMT, Inc.
Drilling Method: 4.25" O.D. H.S.A. Split Spoon Sampling
Drilling Equipment: CME-45C Truck Mounted Drill Rig
REVIEWED BY: Mark Z. Waxali, P.E.

Water Level (Ft.)
During Drilling : 12.0 feet
Immediately After Drilling : 11.0 feet

ATTACHMENT 4

Laboratory Results

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (30) 595-1110

Atterberg Limit Determination

Client: Heuer & Associates
2315 Enterprise Drive - Suite 102
Westchester, Illinois 60154
Mr. Thomas A. Heuer, P.E.

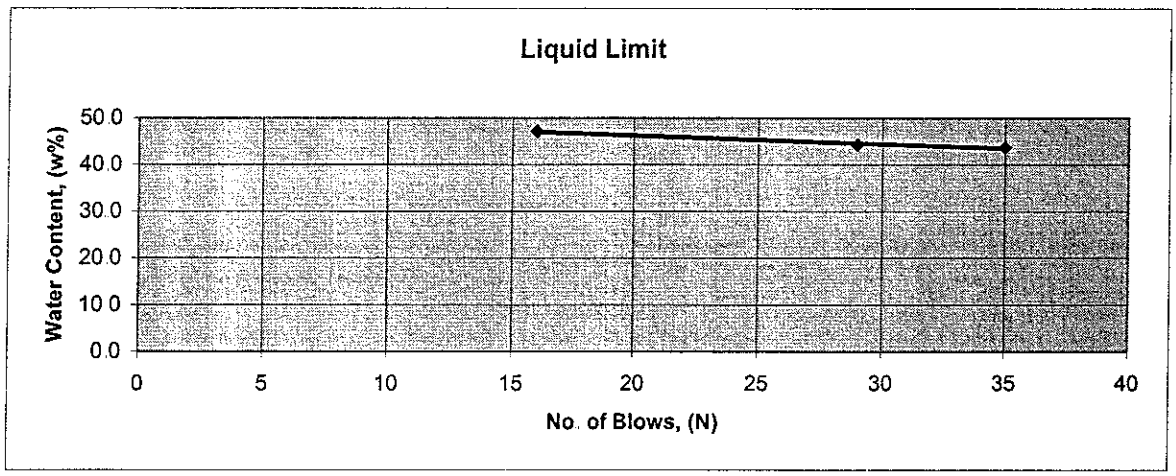
Date of Inspection: 4/14/2006
Inspection By: P. Patel
Project: Bluff Ave. Reconstruction Elm to 47th
LaGrange, IL

Date: 4/17/2006 **Project No.:** 06G0162

Description of Soil: Brown silty clay with trace of sand
Boring No.: 9 **Sample #:** 2

Liquid Limit Determination

Moisture can and lid number	34	72	63	
Wt. of wet soil + can (grams)	21.67	13.38	16.09	
Wt. of dry soil + can (grams)	15.66	9.84	11.54	
Wt. of can (grams)	1.91	1.86	1.89	
Wt. of dry soil (grams)	13.75	7.98	9.65	0
Wt. of moisture (grams)	6.01	3.54	4.55	0
Water content, (w%)	43.7	44.4	47.2	#DIV/0!
No. of drops (N)	35	29	16	



From the above grave, Liquid Limit = 46.0

Plastic Limit Determination

Moisture can and lid number	47	71	27	
Wt. of wet soil + can (grams)	11.16	11.48	13.21	
Wt. of dry soil + can (grams)	9.01	9.25	10.56	
Wt. of can (grams)	1.85	1.83	1.84	
Wt. of dry soil (grams)	7.16	7.42	8.72	0
Wt. of moisture (grams)	2.15	2.23	2.65	0
Water content, (w%)	30.0	30.1	30.4	#DIV/0!

Plastic Limit: 30.2

Total Readings :
Liquid Limit: 46.0
Plastic Limit: 30.2
Plasticity Index: 15.8

Respectfully submitted,
CONSTRUCTION & GEOTECHNICAL MATERIAL TESTING, INC.
K.C. Patel, President

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (30) 595-1110

Atterberg Limit Determination

Client: Heuer & Associates
2315 Enterprise Drive - Suite 102
Westchester, Illinois 60154
Mr. Thomas A. Heuer, P.E.

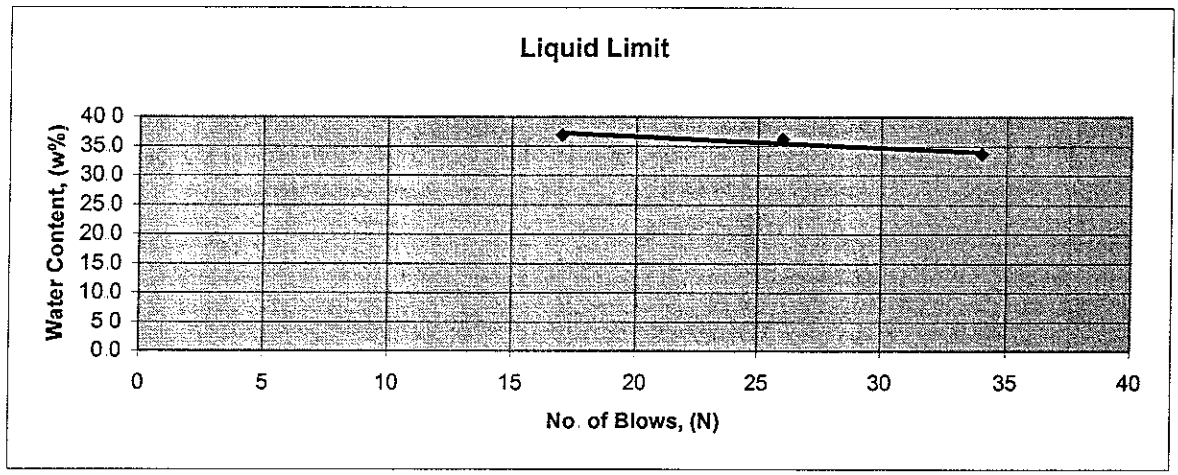
Date of Inspection: 4/14/2006
Inspection By: P. Patel
Project: Bluff Ave. Reconstruction Elm to 47th
LaGrange, IL

Date: 4/17/2006 **Project No.:** 06G0162

Description of Soil: Brown silty clay with trace of sand
Boring No.: 10 **Sample #:** 1

Liquid Limit Determination

Moisture can and lid number	43	86	35	
Wt. of wet soil + can (grams)	13.71	14.21	16.43	
Wt. of dry soil + can (grams)	10.74	10.93	12.51	
Wt. of can (grams)	1.91	1.86	1.89	
Wt. of dry soil (grams)	8.83	9.07	10.62	0
Wt. of moisture (grams)	2.97	3.28	3.92	0
Water content, (w%)	33.6	36.2	36.9	#DIV/0!
No. of drops (N)	34	26	17	



From the above grave, Liquid Limit = 36.0

Plastic Limit Determination

Moisture can and lid number	24	46	83	
Wt. of wet soil + can (grams)	10.46	10.06	10.36	
Wt. of dry soil + can (grams)	8.73	8.46	8.71	
Wt. of can (grams)	1.84	1.85	1.86	
Wt. of dry soil (grams)	6.89	6.61	6.85	0
Wt. of moisture (grams)	1.73	1.6	1.65	0
Water content, (w%)	25.1	24.2	24.1	#DIV/0!

Plastic Limit: 24.5

Total Readings :
Liquid Limit: 36.0
Plastic Limit: 24.5
Plasticity Index: 11.5

Respectfully submitted,
CONSTRUCTION & GEOTECHNICAL MATERIAL TESTING, INC.
K.C. Patel, President

Construction & Geotechnical Material Testing, Inc.

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Atterberg Limit Determination

Client: Heuer & Associates
2315 Enterprise Drive - Suite 102
Westchester, Illinois 60154
Mr. Thomas A. Heuer, P.E.

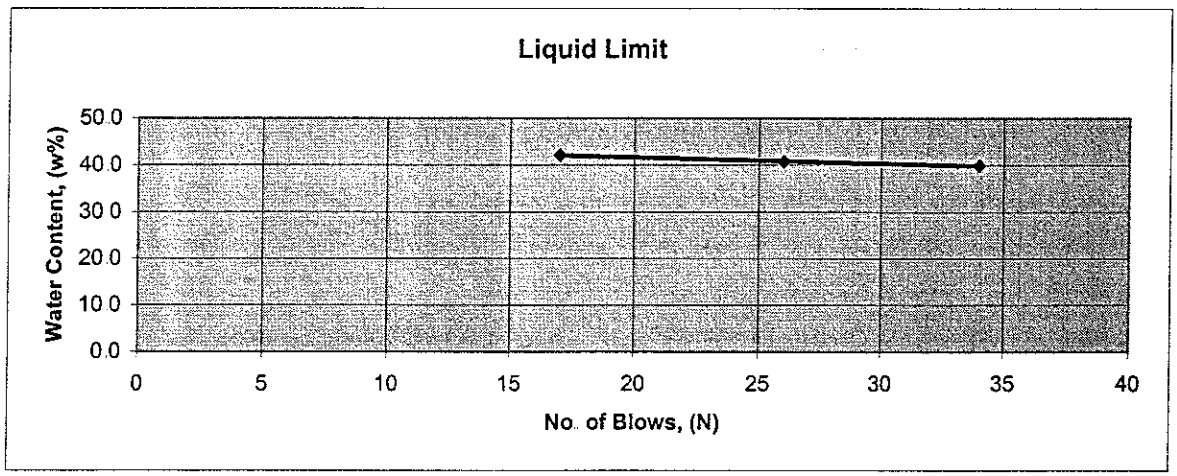
Date of Inspection: 4/14/2006
Inspection By: P. Patel
Project: Bluff Ave. Reconstruction Elm to 47th
LaGrange, IL

Date: 4/17/2006
Project No.: 06G0162

Description of Soil: Brown silty clay with trace of sand
Boring No.: 11 **Sample #:** 2

Liquid Limit Determination

Moisture can and lid number	22	80	44	
Wt. of wet soil + can (grams)	17.61	17.81	20.69	
Wt. of dry soil + can (grams)	13.11	13.18	15.10	
Wt. of can (grams)	1.84	1.82	1.84	
Wt. of dry soil (grams)	11.27	11.36	13.26	0
Wt. of moisture (grams)	4.50	4.63	5.59	0
Water content, (w%)	39.9	40.8	42.2	#DIV/0!
No. of drops (N)	34	26	17	



From the above grave, Liquid Limit = 41.0

Plastic Limit Determination

Moisture can and lid number	24	46	83	
Wt. of wet soil + can (grams)	11.11	12.12	10.07	
Wt. of dry soil + can (grams)	9.04	9.8	8.27	
Wt. of can (grams)	1.86	1.84	1.84	
Wt. of dry soil (grams)	7.18	7.96	6.43	0
Wt. of moisture (grams)	2.07	2.32	1.8	0
Water content, (w%)	28.8	29.1	28.0	#DIV/0!

Plastic Limit: 28.7

Total Readings :
Liquid Limit: 41.0
Plastic Limit: 28.7
Plasticity Index: 12.3

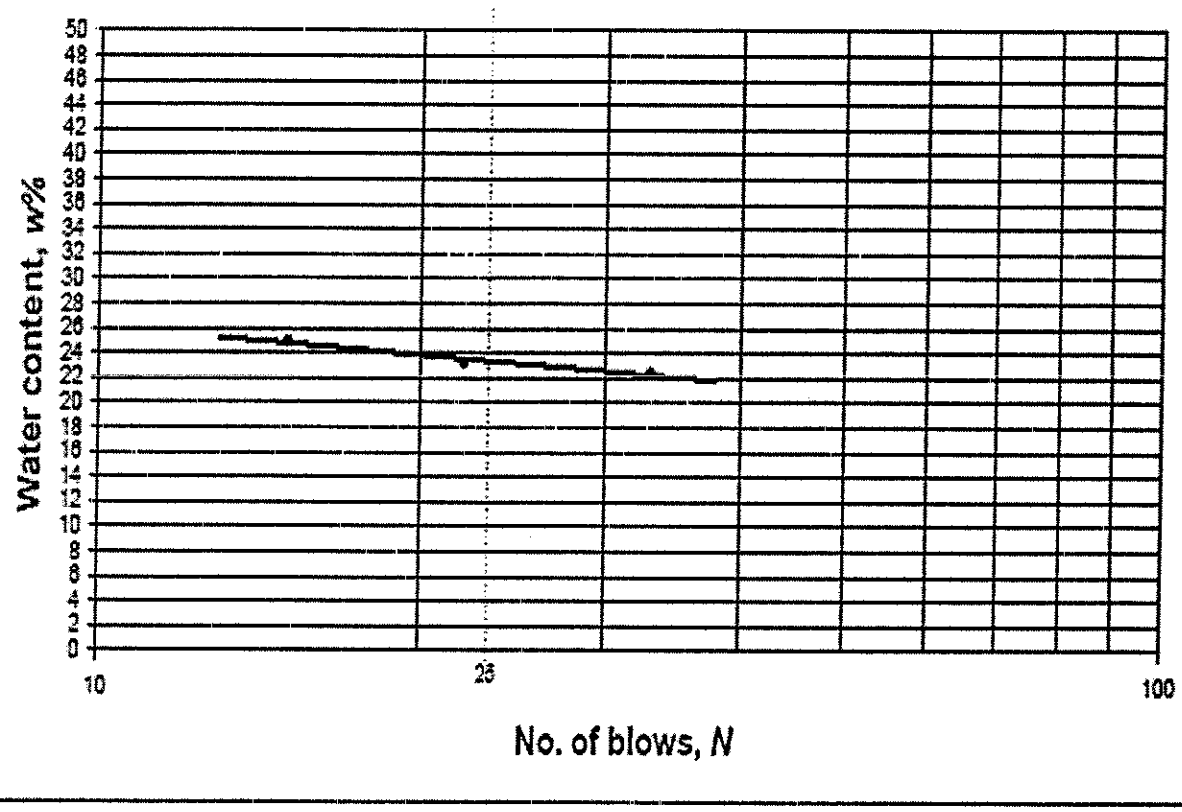
Respectfully submitted,
CONSIRUCTION & GEOTECHNICAL MATERIAL TESTING, INC.
K.C. Patel, President

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (30) 595-1110

Sample Description	Brown sandy silty clay with tr of gravel

LIQUID LIMIT DETERMINATION



Results

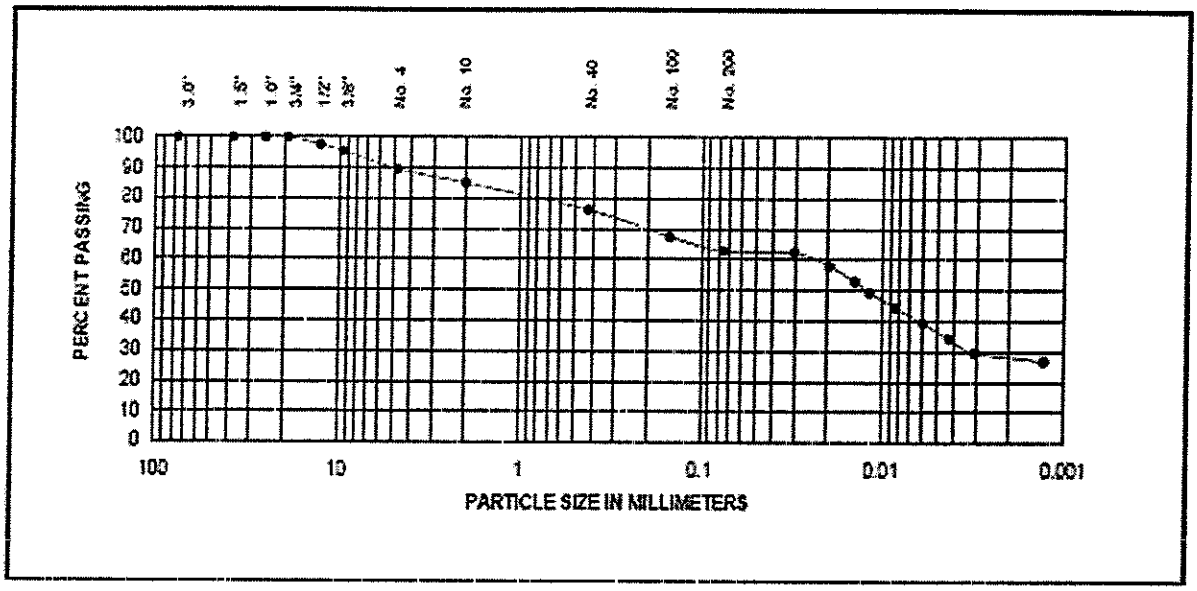
Liquid Limit, LL	23	Plastic Limit, PL	14	Plasticity Index, PI	9

Remarks

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (30) 595-1110

Sample Description	Brown sandy silty clay with tr.of gravel



			Fines	
% + 3"	% Gravel	% Sand	% Silt	% Clay
0.0	10.4	26.7	26.2	36.7

For coarse-grained soils with <12% Fines	D60(mm)	D30(mm)	D10(mm)	Cu	Cc

Sieve Size	Percent Passing
3.0"	100.0
1.5"	100.0
1.0"	100.0
3/4"	100.0
1/2"	97.5
3/8"	95.6
No. 4	89.6
No. 10	85.0
No. 40	76.3
No. 100	67.6
No. 200	62.9

Liquid Limit, L_L	Plastic Limit, PL	Plasticity Index, PI
23	14	9

Soil Classification:	CL
Soil Description:	Sandy lean clay
System:	USCS

Remarks:	
AASHTO Classification : A - 4	

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
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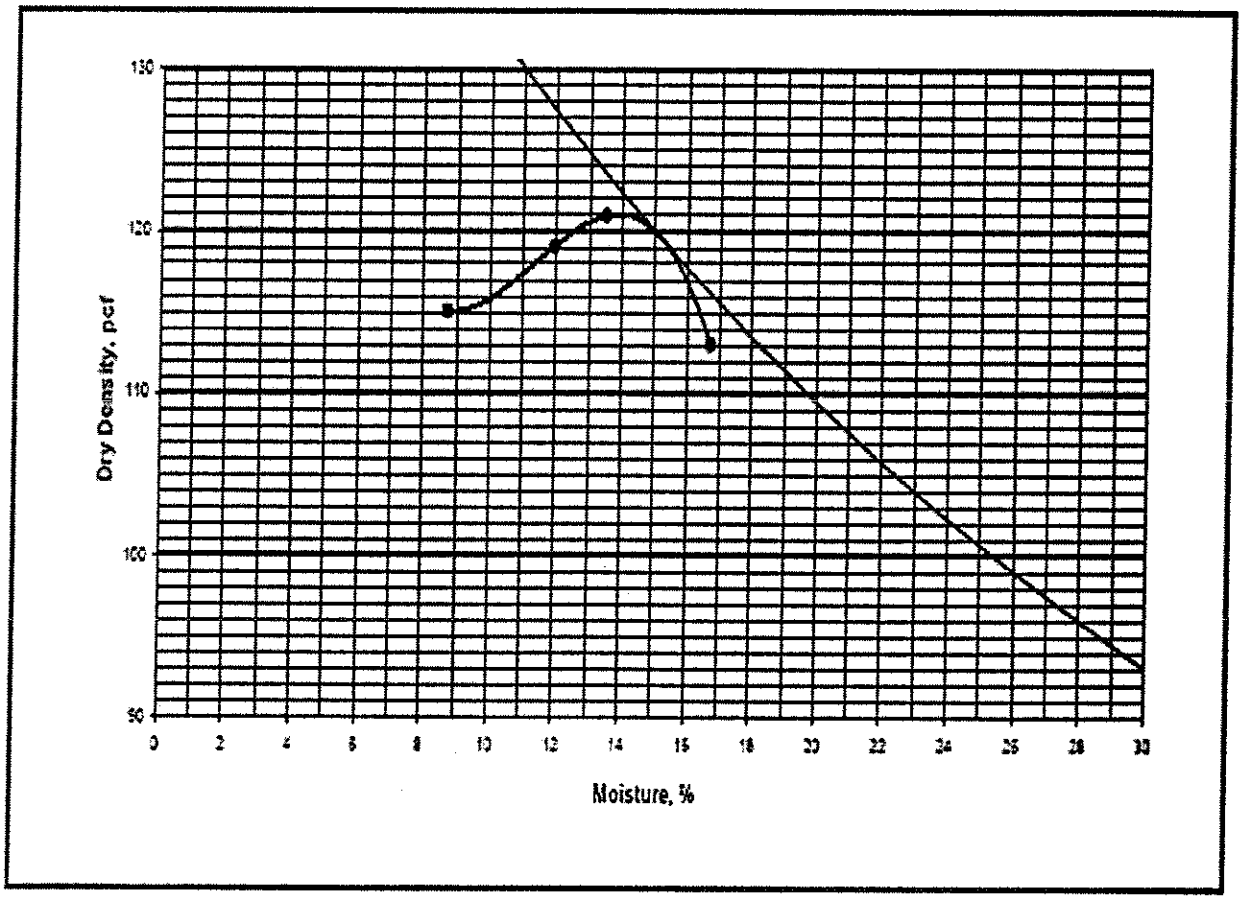
Sample Description	Brown sandy silty clay with tr of gravel								
Type of Proctor	Standard	Method:	A	Mold Size, in.	4	Hammer Weight, lb.	5.5	Drop, in.	12
No. of Layers	3	No. of Blows per Layer		25					



Zero Air Void Curve Specific Gravity: 2.70

Results					
Maximum Dry Density, pcf	121.1	Optimum Moisture Content, %	14.0	Natural Moisture Content, %	0.9
Corrected Max. Dry Density, pcf		Corrected Optimum Moisture Content, %			

Remarks

Construction & Geotechnical Material Testing, Inc.

762 Larsen Lane, Bensenville, Illinois 60106
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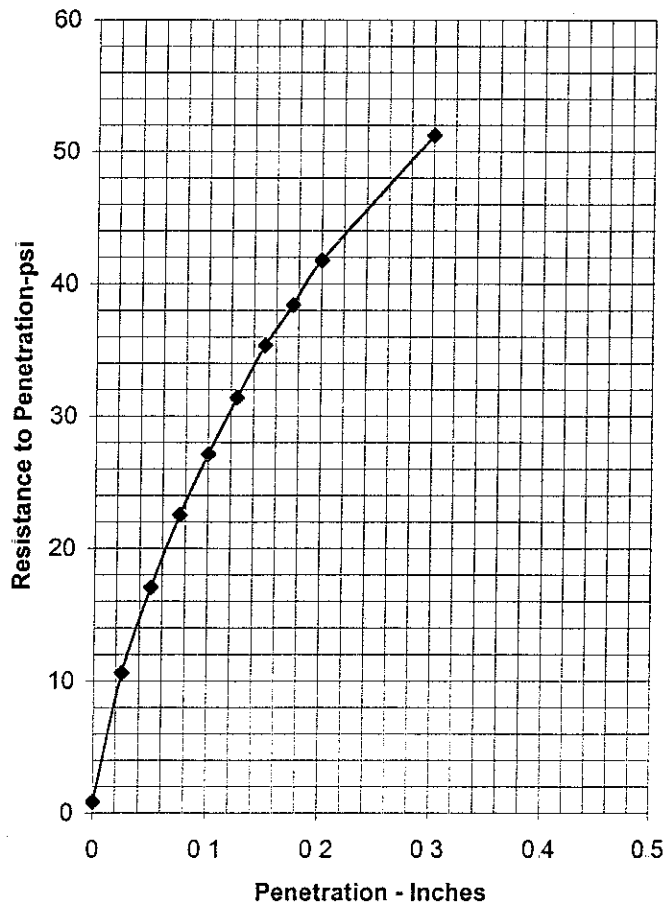
File No	3670	Sample No	BS - 01	Date Tested	5/8/06	Tested By	NP	QC By	SB

Date Recvd.	5/3/06								
Location									
Description	Brown sandy silty clay with tr.of gravel			Classification	A-4	LL	23	PI	9
Method	T 99	Opt. Moisture	14	Hammer wt, lb	5.5	Drop, in		12	
No. of Layers	3	No. of Blows/Layer	25						



Condition of sample	Soaked
Dry Density (pcf), before soaking	121.6
Dry Density (pcf), after soaking	121.8

Moisture Content of sample(%)

Before compaction	After compaction
14.2	14.2
Top 1" After Test	Average After Test
16.8	14.3

Surcharge Weight, lbs	10

Swell (% of initial height)	0.32
CBR (at 0.1 in penetration)	2.7

Remarks

ATTACHMENT 5

General Notes
Unified Soil Classification System

Soil Boring Description

Construction & Geotechnical Material Testing, Inc.
762 Larsen Lane Bensenville, Illinois 60106
♦ Phone (630) 595-1111 ♦ Fax (630) 595-1110

Soil Boring Prepared for:

Boring No.

Boring No.: _____
Date: _____
Project: _____
_____
Project No.: _____
Boring Location: _____
_____
Logged By: _____
Ground Elevation: _____

Sheet 1 of _

Elevation	Depth	Strata	Soil / Rock Description	Sample Type & No. Depth Interval (Ft) Recovery (In)	Blow Count	Moisture Content (%)	Unconfined Compressive Strength (TSF)	Notes & Test Results
	0.0		Soil Description - Soil descriptions and general notes are given in this column. Lines mark the approximate limits of each soil type. Actual stratification changes in-situ may be gradual, rather than sharply bounded as the stratification lines may suggest.					Unconfined compressive strength of soil samples estimated using a calibrated pocket penetrometer and measured in Tons per Square Foot (TSF).
	1.0			SS-1 1.0 - 2.5 " Recovery				
	2.0							
	3.0							
	4.0			SS-2 3.5 - 5.0 " Recovery				
	5.0							
	6.0			SS-3 6.0 - 7.5 " Recovery				
	7.0							
	8.0		Blow Count - Individual blow counts for each six inches the sampler was driven. Number of blows required to drive the sampler the final twelve inches is the 'N' value.					SS - Split Spoon Sample
	9.0			SS-4 8.5 - 10.0 " Recovery				
	10.0							
	11.0			SS-5 11.0 - 12.5 " Recovery				LL- Liquid Limit PL - Plastic Limit PI - Plasticity Index LL, PL, PI determined by the Atterberg Limits test performed in the geotechnical laboratory
	12.0							
	13.0							
	14.0		Moisture Content - Determined by laboratory testing.	SS-6 13.5 - 15.0 " Recovery				
	15.0							
	16.0			SS-7 16.0 - 17.5 " Recovery				
	17.0							
	18.0							
	19.0			SS-7 18.5 - 20.0 " Recovery				
	20.0		End of Boring					

Drilling Contractor:	Water Level (Ft.)
Drilling Method:	During Drilling:
Drilling Equipment:	Immediately After Drilling:
APPROVED BY:	

PRIMARY DESCRIPTIVE ELEMENTS

1. Material Classification
2. Density or Consistency
3. Moisture
4. Color
5. Grain Size Distribution
6. Plasticity/Cohesiveness
7. Stratification and Structure
8. Secondary Information
9. Geologic Interpretation

MATERIAL CLASSIFICATION

Textural Classification - based on Unified Soil Classification System (visual manual procedure described on back of page)

DENSITY or CONSISTENCY

(Terzaghi and Peck, 1967)

Cohesive Materials			*Granular Materials*	
	Blow Counts	q_u (tsf)		Blow Counts
Very Soft	0-2	<0.25	Very Loose	0-4
Soft	3-4	0.25-0.50	Loose	5-10
Medium	5-8	0.50-1.0	Medium Dense	11-29
Stiff	9-15	1.0-2.0	Dense	30-49
Very Stiff	16-30	2.0-4.0	Very Dense	>50
Hard	>30	>4.0		

MOISTURE

(based on ASTM D)

Dry	Absence of Moisture
Moist	Damp, but no visible water
Wet	Visible free water

COLOR

Matrix Color and Secondary Mottling (Use Munsell Color Chart)

PLASTICITY

(based on ASTM D 2488)

Non-Plastic	1/8-inch thread cannot be rolled at any water content
Low	Thread can barely be rolled and lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.
NOTE:	Cohesiveness (Cohesive or Non-Cohesive)

STRUCTURE

(modified from ASTM D 2488)

Massive (Homogeneous)	Same color, texture, and appearance throughout
Thinly Laminated	0 to 2 mm
Laminated	3 to 6 mm
Bedded	> 6 mm (Note bedding thickness)
Fissured	Breaks along definite planes
Blocky	Cohesive soil that breaks into lumps
Lensed	Inclusion of small pockets of different soils
ALSO NOTE:	Bedding Attitude (Horizontal or Inclined)
	Secondary Features (Slickensides, Platy)

CONTACT

Sharp	< 1 cm
Gradational	> 1 cm (Note transition interval)

SECONDARY INFORMATION

Weathering Zone (Oxidized, Reduced, Deoxidized, Unoxidized)
Carbonate Status (Leached or Unleached)
Dry Strength (None, Low, Medium, High, Very High)
Toughness (Low, Medium, High)
Cementation (Weak, Moderate, Strong)
Odor: (mention if organic or unusual)
Dilatancy (Slow, Medium, or Rapid)
Particle Angularity (Angular, Subangular, Subrounded, Rounded)
Particle Shape (Flat, Elongated, or both)
Presence of Roots, Fossils, Accessory Minerals, Surface Coatings

GEOLOGIC INTERPRETATION

Subdivisions of:

Alluvial	Colluvial	Glacial	Residual
Aeolian	Pyroclastic	Marine	Organic

CRITERIA FOR ESTIMATING FIELD CLASSICATION OF FINE-GRAINED SOILS

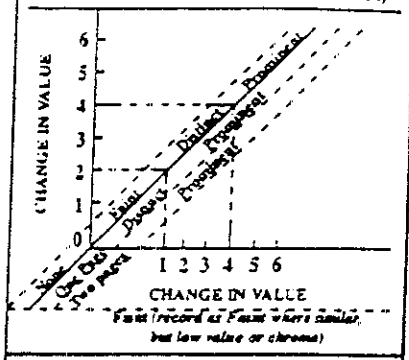
Plasticity	Dilatancy	Soil Thread	Toughness	Dry Strength	Smear	USCS Group Name
Non Plastic	Rapid	No Thread	No Thread	None	None	Silt (ML)
Slight	Rapid to Slow	1/4 to 1/8"	Low	Low	Dull	Silt (ML) Organic Silt (OL)
Low	Slow	1/8 to 1/16"	Low to Medium	Low to Medium	Dull to Slightly Shiny	Organic Silt (OL) Elastic Silt (MH) Silty Clay (CL-ML)
Medium	None to Slow	1/32"	Medium	Medium to High	Slightly Shiny to Shiny	Lean Clay (CL) Elastic Silt (MH) Organic Clay (OH)
High	None	1/64"	High	High/Very High	Shiny	Fat Clay (CH)

EXAMPLE

POORLY GRADED SAND WITH GRAVEL (SP)
Loose, dry, pale yellow (2.5Y 7/3), mostly coarse to fine sand, little fine gravel, non-plastic, horizontal planar stratification (10mm), with occasional laminations (3mm) of yellowish brown (2.5YR 6/3) clay. ALLUVIUM, Henry Formation

CONTRAST OF MOTTLES

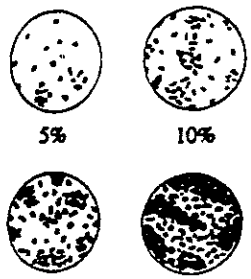
(for use with the Munsell Color Chart)



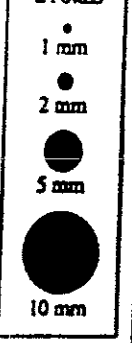
ABUNDANCE: Few: <2%, Common: 2-20%, Many: >20%
SIZE: Fine: <5mm, Medium: 5-15mm, Coarse: >15mm
CONTRAST: Faint, Distinct, or Prominent (As Above)

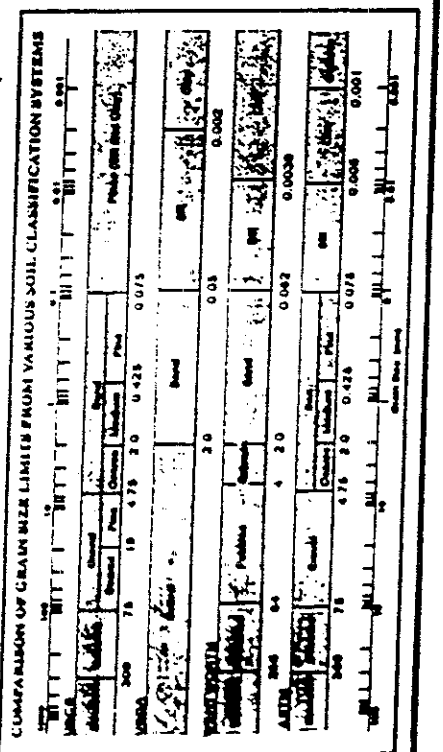
REFERENCE CHARTS

PERCENT COMPOSITION



PARTICLES & PORES





PROPORTIONS BY WEIGHT:
Trace: 1-5%, Few: 5-10%,
Little: 15-25%, Some: 30-45%