Indiana Department of Transportation

Materials and Tests Division

120 South Shortridge Road P. O. Box 19389
Indianapolis, Indiana 46219-0389
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March 24, 2004

Mr. Bruno Canzian
Local Transportation Manager
Program Development Division
Room N601 - IGCN

Attn: Mr. Robert Rhoades, Area Engineer

Subject: Des No: 0300444
Project No: STP – 9930 ( )
CR 600W (Mt. Comfort Road)
in Hancock County

Gentlemen:

The Geotechnical Investigation for the subject project has been completed and copies of the Geotechnical Report are being forwarded to those listed below.

If you have any questions concerning the above matter, please call us.

Very truly yours,

for Athar A. Khan, P.E.
Chief Geotechnical Engineer

Mir Zaheer, P.E.
Senior Geotechnical Engineer

MZ
cc:
USI Consultants Inc. – Attn: Mr. M. Obergfell – Attachments
Hancock County Engineer – Attn: Mr. Joe Copeland - Attachments
Mr. Bob Williams – Attn: Mr. G. Pankow – Attachments (2)
Mr. John Wright – Attachments
Ms. B. Thacker – Attachments
Mr. D. Cohen - Attachments
File

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GEOTECHNICAL EVALUATION

PROJECT NOS. STP-9930 (029)
DES. NOS. 0300444
CR 600W (MT. COMFORT ROAD)
US 52 TO CR 200 N
HANCOCK COUNTY, INDIANA

Prepared for

USI CONSULTANTS, INC.
8415 EAST 56TH STREET
INDIANAPOLIS, INDIANA 46216

By

EARTH EXPLORATION, INC.
7770 WEST NEW YORK STREET
INDIANAPOLIS, INDIANA 46214-2988

March 23, 2004

EARTH EXPLORATION INC.

SUMMARY OF RECOMMENDATIONS[1]
GEOTECHNICAL EVALUATION
PROJECT NOS. STP-9930 (029), DES. NOS. 0300444
CR 600W (MT. COMFORT ROAD)
US 52 TO CR 200 N
HANCOCK COUNTY, INDIANA

Cut and Fill Considerations

In general, the subsurface conditions at the boring locations appear to be suitable for support of the proposed pavement sections and drainage structures. Based on the project plans, the maximum earth cuts are anticipated to be about 7 ft, and the maximum fill placement will be about 6 ft. Based on the information obtained at the boring locations, we anticipate that standard embankment construction practices outlined in the ISS should provide an adequate subgrade for embankment construction. Where soft cohesive soils are encountered which will not readily compact, we recommend they be stabilized in accordance with the current edition of ISS Section 203.09. The final decision regarding stabilization, if necessary, should be made at the time of construction, based on the observed actual conditions. At several boring locations trace amounts of organic matter were typically observed within the upper 2 to 3 ft of the profile. Based on the moisture contents of these soils, it is our opinion that these soils can be reused as fill in landscaped areas. The decision to reuse these soils should be made in the field at the time of construction based on visual inspection and additional laboratory testing. If concentrated areas of organic matter are encountered during grading operations, they should be completely removed and replaced with inorganic fill soils

Drainage Structure Foundations

Three major drainage structure crossings are planned along the alignment. At some of the structure locations, removal and replacement of soft and/or loose soils may be required to obtain a stable subgrade for construction of foundations. Based on the information obtained at the boring locations, it is anticipated that the structures will generally be established in medium stiff to very stiff cohesive soils or medium dense granular soils. If soft and/or loose soils are encountered at the foundation subgrade, we recommend that these soils be removed and replaced with No. 53 crushed stone to provide a stable subgrade for the construction of foundations. In our opinion, the undercuts should be widened a distance equivalent to the undercut depth. The aggregate should be compacted to 100 percent of the maximum dry density of a standard Proctor where feasible.

Pavement Design Considerations

Based on information provided on the plans, the projected (i.e., year 2022) annual average daily traffic (AADT) is estimated to be about 7,679 vehicles per day (VPD) for CR 600W between US 52 and US 40. Based on the proposed pavement grades and the profile of the existing ground surface, it appears that the roadway subgrade will consist primarily of clay loam, loam, or engineered fill similar to those cohesive soils observed herein.

In our opinion, the clay loam (i.e. A-6(7)) will control the pavement design. Based upon the test results, the projected traffic volume (7,679 VPD), and size of project (i.e., greater than 10,000 sq. yds), we recommend using a Type "A" subgrade treatment (per ISS 207.04) with a Resilient Modulus of 5,550 psi (estimated based on INDOT Road and Design Manual, July 2002, Chapter 52). For the realignments of CR 200S and CR 300S we recommend a Type "E" subgrade treatment (per ISS 207.04) with a Resilient Modulus of 3,000 psi (i.e., CBR of 2.0).

For the portion of the alignment north of US 40, 10 pavement cores were performed for evaluation the existing pavement conditions. We understand that the existing unpaved shoulders will be paved with a full depth asphaltic concrete section during milling and resurfacing of the existing road. For design of the shoulder pavement we recommend a Resilient Modulus of 3,000 psi (i.e., CBR of 2.0) and a Type E subgrade treatment (per ISS 207.04).

Water infiltration into cohesive subgrade soils can reduce the life of a pavement section. Since the majority of the subgrade soils have a relatively low permeability, we would anticipate that any water which may infiltrate the subgrade would affect the long-term performance of the pavement. Under these conditions, we recommend that consideration be given to the use of subsurface pavement drains with screened outlets in the design of the pavement system. In our opinion, the drains should be surrounded by a permeable drainage medium consisting of a uniformly-graded aggregate.

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[1] **The purpose of this summary is to provide an abbreviated discussion of our recommendations contained in the attached evaluation. In our opinion, the recommendations in this summary are the "most significant" geotechnical issues affecting the proposed construction. For additional discussion and recommendations, our geotechnical report should be consulted and/or Earth Exploration, Inc. should be contacted**

March 23, 2004

EARTH EXPLORATION INC.
7770 West New York Street
Indianapolis, IN 46214-2988
317-273-1690 (FAX) 317-273-2250

Mr. Michael J. Obergfell, P.E.
USI Consultants, Inc.
8415 East 56th Street
Indianapolis, IN 46216

Re: Geotechnical Evaluation
Project No. STP-9930 (029)
Des. No. 0300444
CR 600W (Mt. Comfort Road)
US 52 to CR 200 N
Hancock County, Indiana
EEI Project No. 1-03-344

Dear Mr. Obergfell:

We are pleased to submit our geotechnical evaluation for the above-referenced project. This report presents the results of our subsurface exploratory program and provides geotechnical recommendations for the proposed roadway improvements and drainage structures. Project authorization was provided by USI Consultants, Inc., (USI) on September 30, 2003, via a notification letter. Our geotechnical services were performed in accordance with the Consultant Agreement for Geotechnical Investigations dated October 11, 2001.

The opinions and recommendations submitted in this report are based, in part, on our interpretation of the subsurface information at the test boring locations as indicated on an attached plan. This report does not reflect variations in subsurface conditions between or beyond these locations. Variations in these conditions should be expected, and fluctuation of the groundwater levels may occur with time. Other important limitations of this report are discussed in Appendix A.

PROJECT DESCRIPTION

We understand that the commissioners of Hancock County, in assistance with federal funds, are planning to make improvements to CR 600W (Mt. Comfort Road) between US 52 and CR 200 N, in Hancock County. Based on plans and information provided by USI, the project will, in part, include widening of the existing roadway; construction of new pavement; and overlaying of existing pavement. The portion of the alignment north of US 40 is planned to be milled and resurfaced. Drainage improvements are also planned and include culverts, pipe structures, and ditches. The centerline of construction along CR 600W will follow Line "A" beginning at Station 23+21.56 and ending at Station 334+30 and include other minor intersecting roadways for a total length of approximately 6 mi.

Realignment of the intersections of CR 600W and CR 300S, and CR 600W and CR 200S are also planned. Refer to the Test Boring Location Plan in Appendix C for the project location and approximate boring locations along the alignment.

Based on information shown on the plan and profile sheets provided by USI, drainage improvements along the alignment will consist of three major culvert or pipe structures and several minor reinforced concrete pipe crossings.

For roadway improvements, negligible earthwork is anticipated. However, maximum earth cuts and fills for drainage ditches are planned to be on the order of about 7 ft and 6 ft, respectively. Based on information provided by USI, earth slopes are not anticipated to exceed 3 Horizontal (H): 1 Vertical (V). Additionally, the roadway is anticipated to consist of bituminous paving materials supported by a layer of compacted aggregate sub-base (INDOT No. 53) material in areas of complete reconstruction, while other areas will consist of milling and resurfacing. From information provided on the plans, the projected (i.e., year 2022) annual average daily traffic (AADT) is estimated to be about 7,679 vehicles per day (VPD) for CR 600W between US 52 and US 40. The projected (i.e., year 2022) annual average daily traffic (AADT) for CR 600W north of US 40 is estimated to be about 16,026 VPD.

At this time, other information such as anticipated construction schedule is not known. In the event that the nature, design or location of the proposed construction changes, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions are modified or confirmed in writing.

FIELD EXPLORATION AND LABORATORY TESTING

Subsurface conditions for the proposed improvements were explored by performing: thirty-six road borings (designated RB-1 through RB-36) to depths of 7½ to 10 ft below the existing ground surface; five structure borings (designated TB-1 through TB-5) to depths of 15 to 20 ft; and thirteen hand auger soundings. Ten pavement cores were also performed for the resurfacing portion of the project north of US 40. The number, location and depths of the test borings and soundings were selected by EEI and were approved by INDOT, Materials and Test Division, Geotechnical Section. Additionally, the borings and soundings were located in the field by EEI personnel referencing identifiable features shown on the previously mentioned plans. Ground surface elevations at the boring locations were interpolated to the nearest ½-ft based on topographic information provided on the plan and profile sheets. The boring locations and elevations should be considered accurate only to the degree implied by the methods used.

Mr. Michael J. Obergfell, P.E.
USI Consultants, Inc.

Exploratory field activities were performed by EEI during the period of October 22 through the 29, 2003. In general, exploratory activities were performed using hollow stem augers to advance the boreholes. Representative samples of the soil conditions using Standard Penetration Test (SPT) procedures (AASHTO T 206) were obtained at predetermined intervals. After obtaining final groundwater observations, each borehole was backfilled with auger cuttings, bentonite chip plug and a concrete patch was placed at the surface. (i.e., in accordance with the "Aquifer Protection Guidelines" [revised October 30, 1996] developed by INDOT). Select borings performed off the pavement within the right-of-way in ditches and private yards were left open for 24-hr water level readings. Additional details of the drilling and sampling procedures are provided in Appendix B.

Following the field activities, the soil samples were visually classified by an EEI engineering technician and later reviewed by an EEI geotechnical engineer. After visually classifying the soils, representative samples were selected and submitted for index property testing. These tests included: natural moisture content (AASHTO T 265); grain size analysis (AASHTO T 88); Atterberg limits (AASHTO T 89 and T 90); loss-on-ignition (organic content; AASHTO T 267); soil pH; unit density; and numerous hand penetrometer readings. Other tests included unconfined compression (AASHTO T 208), moisture-density relations (AASHTO T 99), two California Bearing Ratios (CBR) (AASHTO T 193) and resilient modulus (AASHTO T 307) performed on two bulk samples. The results of these tests are provided on the boring logs in Appendix C and/or respective summary sheets in Appendix D. For your information, soil descriptions on the boring logs are in general accordance with the AASHTO system [AASHTO designation, e.g., A-4(1)] and the INDOT Standard Specifications (ISS[1]) (textural classification, e.g., loam). The final boring logs represent our interpretation of the individual samples and field logs and results of the laboratory tests. The stratification lines on the boring logs represent the approximate boundary between soil types; although, the transition may actually be gradual.

SITE CONDITIONS

Surface Conditions

Based on our observations, the existing two-lane road is paved with asphaltic concrete, and there are minimal to nonexistent shoulders. Where present, the shoulders are generally level with the road or slope gently towards drainage ditches or adjacent properties. Based on our observations, existing drainage ditches along the alignment are generally shallow and close to the edge of the road, and many are part of maintained lawns fronting residences. In general, the topography of the ground surface along the length of the project is relatively level to gently sloping upward towards the north with ground surface elevations

[1] References the Indiana Department of Transportation (INDOT) Standard Specifications, 1999 Edition.

ranging from about Elevation 819 near Station 23+50 to Elevation 852 near Station 203+00 between US 52 and US 40. Between US 40 and CR 200 N, the ground surface elevations range from about Elevation 851 near Station 216+00 to Elevation 866 near Station 300+00.

Soil Conditions

Based on the information gathered during our field activities, the subsurface profile generally consisted of cohesive soil fill or naturally-occurring cohesive-type soils underlain by loam type (cohesive) soils. The surficial conditions encountered at the boring locations typically consisted of asphaltic concrete ranging from about 5 to 12 in. in thickness underlain by a crushed stone or sand and gravel subbase. Beneath the pavement materials, the majority of the profile consisted of clay loam, sandy clay loam, and loam to the maximum depths explored. In the structure borings, occasional layers of silty clay were encountered at greater depths. Even fewer occurrences of granular soils (i.e., sandy loam, and sand and gravel) were encountered in some of the borings.

From our observations, the consistency of the cohesive soils (natural or fill) ranged from very soft to hard with N-values ranging from 2 to 42 blows/ft (bpf), based on N-value criteria established by INDOT. Hand penetrometer readings generally ranged from ½ to over 4½ tons/sq ft (tsf) with the majority of readings between 1 and 3½ tsf. Moisture contents were typically on the order of 8 to 37 percent with the majority of these values between 10 and 25 percent. For your information, the moisture content is directly related to the shear strength characteristics of cohesive soils, i.e., as the moisture content increases the strength decreases. Several Loss on Ignition (LOI) tests were performed on soils with traces of organic matter. The results of the LOI tests indicate organic contents ranging from 4.7 to 7.4 percent.

The relative density of the granular soils (i.e., sandy loam, and sand and gravel) was typically very loose to very dense with SPT N-values ranging from 4 to 47 blows/ft (bpf). In addition, three unconfined compression tests were performed on split-spoon samples of loam from the structure borings. Results from these tests indicated peak undrained shear strengths (i.e. using the Ø=0 concept) ranging from 3.02 to 6.25 tsf at axial strains ranging from 9.8 to 15 percent. Based on a comparison of the moisture contents and Atterberg limits, the cohesive soils generally appeared to be of low to moderate plasticity and somewhat over-consolidated. Furthermore, seven samples were also tested for pH level, (i.e., hydrogen-ion content), and these results indicated that the pH levels ranged from 7.3 to 8.0. These results are provided in the Summary of Special Laboratory test in Appendix D.

Groundwater Conditions

Groundwater level observations made up to 72 hrs after completion of the exploratory activities are shown at the bottom of the logs. The table below presents a synopsis of the

Mr. Michael J. Obergfell, P.E.
USI Consultants, Inc.

groundwater levels observed at the borehole locations. For specific groundwater information at the boring locations refer to the boring logs in Appendix C.

TABLE 1. GROUNDWATER LEVEL OBSERVATIONS

Boring No.	Station	Ground Surface Elevation	Depth (Elevation) *		
			During	At Completion	24- to 72-Hour
RB-2	33+00	825.0	6 (819)	6 (819)	NW
RB-3	39+00	830.0	7 (823)	5 (825)	--
RB-4	45+00	834.0	6 (828)	6 (828)	--
RB-10	85+00	840.0	6 (824)	8 (822)	--
RB-15	120+00	841.5	NW	NW	3.5 (838)
RB-20	158+00	846.0	NW	5.5 (840.5)	--
RB-21	164+00	847.5	NW	NW	2 (845.5)
TB-1	48+90	828.0	6 (822)	NW	5.5 (822.5)
TB-2	49+00	827.5	NW	18 (809.5)	--
TB-3	102+50	839.5	6 (823.5)	9 (830.5)	--
TB-5	139+75	842.0	6 (826)	NW	--

* Depth units are in feet.

In our opinion, these elevations likely represent a perched condition where water is trapped in sand seams within relatively impervious cohesive soils, and the actual "piezometric" groundwater level is deeper than the maximum depth explored. It should be recognized that groundwater levels either static or perched can fluctuate due to changes in precipitation, infiltration, surface run-off, and other hydrogeological factors.

DISCUSSION AND RECOMMENDATIONS

Based on the plans and cross-sections, the improvements along the alignment are anticipated to consist of widening, milling and resurfacing of existing pavements and construction of drainage ditches along CR 600W between US 52 and US 40. In addition to the aforementioned pavement and ditch improvements, realignment of the existing roadway at select locations and installation of several new drainage structures crossing CR 600W are also planned. The portion of the alignment between US 40 and CR 200 N is planned to be milled and resurfaced.

In general, the subsurface conditions at the boring locations appear to be suitable for support of the proposed pavement sections and drainage structures. However, at several boring locations soft cohesive soils and soils with trace amounts of organic matter were encountered at or near the proposed pavement subgrade. Recommendations for remediation of these soils are presented in the paragraphs below.

Mr. Michael J. Obergfell, P.E.
USI Consultants, Inc.

Cut and Fill Considerations

Based on the project plans, the maximum earth cuts are anticipated to be about 7 ft, and the maximum fill placement will be about 6 ft. Based on the information obtained at the boring locations, we anticipate that standard embankment construction practices outlined in the ISS should provide an adequate subgrade for embankment construction. Where soft cohesive soils are encountered which will not readily compact, we recommend they be stabilized in accordance with the current edition of ISS Section 203.09. The final decision regarding stabilization, if necessary, should be made at the time of construction, based on the observed actual conditions.

Based on observations of the soil conditions and the above discussion, it is our opinion that the stability of the proposed 3H:1V side slopes are generally not a concern, provided adequate subgrade preparation and compaction of the fill soils is achieved. In general, the majority of natural soils encountered on this project are suitable for reuse as embankment fill. If cut and fill quantities are not anticipated to balance and imported fill material is required, then EEI should be retained to evaluate the characteristics of the soil source for use as earth fill.

Drainage Structure Foundations

Three major drainage structure crossings are planned along the alignment. At some of the structure locations, removal and replacement of soft and/or loose soils may be required to obtain a stable subgrade for construction of foundations. Table 2 presents a summary of the anticipated subgrade conditions at the proposed drainage structures.

TABLE 2. SUMMARY OF CONDITIONS AT DRAINAGE STRUCTURES

Structure Location	Size/Type	Approximate Base Grade or Bottom of Footing Elevation	Nearest Test Boring (s)	Subgrade Conditions Below Invert	Approximate Groundwater Elevation
48+90	4 x 8 ft Box Culvert	820	TB-1 & TB-2	Sandy Loam, medium dense or Loam, stiff to very stiff	823
102+50	42" x 24" Pipe Arch	834	TB-3	Clay Loam, medium stiff or Loam, very stiff	834
139+75	57" x 38" Pipe Arch	836	TB-5	Clay Loam, medium stiff or Loam, medium stiff to stiff	835

Based on the information obtained at the boring locations, it is anticipated that the structures will generally be established in medium stiff to very stiff cohesive soils or medium dense granular soils. If soft and/or loose soils are encountered at the foundation subgrade, we recommend that these soils be removed and replaced with No. 53 crushed stone to provide a stable subgrade for the construction of foundations. In our opinion, the undercuts should be widened a distance equivalent to the undercut depth. The aggregate should be

Mr. Michael J. Obergfell, P.E.
USI Consultants, Inc.

compacted to 100 percent of the maximum dry density of a standard Proctor where feasible.

Based on our observations, excavations for the structures may encounter perched groundwater. In this case, it is likely that the water can be removed by means of a pump and filtered sump, possibly in conjunction with collection trenches. For continuously flowing creeks/ditches, diversion of the creek/ditch may be required during construction.

Pavement Design Considerations

Based on information provided on the plans, the projected (i.e., year 2022) annual average daily traffic (AADT) is estimated to be about 7,679 vehicles per day (VPD) for CR 600W between US 52 and US 40. Based on the proposed pavement grades and the profile of the existing ground surface, it appears that the roadway subgrade will consist primarily of clay loam, loam, or engineered fill similar to those cohesive soils observed herein. The results of the California Bearing Ratio (CBR) tests performed on two samples are presented in Table 4.

TABLE 4. CBR TEST RESULTS

Boring No.	Soil Type	CBR Value at		
		93% of MDD	95% of MDD	97% of MDD
RB-16A	Clay Loam, A-6 (7)	1.8	2.5	3.7
RB-25A	Clay Loam, A-7-6 (17)	2.7	3.6	4.7
MMD – Maximum Dry Density				

In our opinion, the clay loam (i.e. A-6(7)) will control the pavement design. Based upon the test results, the projected traffic volume (7,679 VPD), and size of project (i.e., greater than 10,000 sq. yds), we recommend using a Type "A" subgrade treatment (per ISS 207.04) with a Resilient Modulus of 5,550 psi (estimated based on INDOT Road and Design Manual, July 2002, Chapter 52). For the realignments of CR 200S and CR 300S we recommend a Type "E" subgrade treatment (per ISS 207.04) with a Resilient Modulus of 3,000 psi (i.e., CBR of 2.0).

For the portion of the alignment north of US 40, 10 pavement cores were performed for evaluation the existing pavement conditions. We understand that the existing unpaved shoulders will be paved with a full depth asphaltic concrete section during milling and resurfacing of the existing road. For design of the shoulder pavement we recommend a Resilient Modulus of 3,000 psi (i.e., CBR of 2.0) and a Type E subgrade treatment (per ISS 207.04).

Mr. Michael J. Obergfell, P.E.
USI Consultants, Inc.

Water infiltration into cohesive subgrade soils can reduce the life of a pavement section. Since the majority of the subgrade soils have a relatively low permeability, we would anticipate that any water which may infiltrate the subgrade would affect the long-term performance of the pavement. Under these conditions, we recommend that consideration be given to the use of subsurface pavement drains with screened outlets in the design of the pavement system. In our opinion, the drains should be surrounded by a permeable drainage medium consisting of a uniformly-graded aggregate.

Drainage Structure Considerations

Drainage structures are proposed at several locations along the alignment. In general, the placement of box culverts and pipes within the soil profile does not increase the load on the underlying soil. However, it is important to have proper support to prevent the pipe from becoming overstressed in bending or compression. In general the conditions encountered at the proposed box culverts and pipe invert elevations should be adequate for support of the proposed structures. Where soft soils are encountered at the base of the trenches (as previously mentioned), it is our opinion they should be removed and replaced with compacted "B" Borrow material to achieve a stable base. If this is not feasible due to the depth of the unstable materials, the use of a woven geotextile and/or compacted crushed aggregate may be required to stabilize the trench. In this case, a minimum of 24-in. of the soft soils should be removed prior to stabilization.

For smaller pipe structures (i.e., less than 1.2 m in diameter or width), we recommend a minimum 6-in. thick bedding layer, consisting of "B" Borrow material should be provided for pipe support. Since the pipe trenches will be primarily located beneath the proposed roadway, the trenches should be backfilled to grade with "B" Borrow material. In our opinion, the "B" Borrow material should be compacted to 95 percent of maximum dry density obtained in accordance with AASHTO T 99 and INDOT Specifications. Hand or remote guided vibratory compactors are recommended for compacting the bedding material and material on either side of the pipe. The first several lifts of backfill over the pipe should also be compacted with small vibratory compactors to assure proper compaction is achieved and to prevent damage to the pipe from heavier, high-energy compactors.

CONSTRUCTION CONSIDERATIONS

Subgrade Preparation

Prior to placing any fill or pavement components, we recommend that all topsoil, wet or soft soils, and existing pavement components and utilities (where necessary) be removed from within the construction limits. Based on soundings performed in existing ditches along the alignment, we anticipate that the majority of existing ditch subgrades should be adequate for support of fill in areas of widening.

In areas to receive new fill and pavement components, proof-rolling of the natural ground surface should be performed in accordance with the ISS, Section 203.26. Where soft cohesive soils are encountered which will not readily compact, we recommend they be stabilized in accordance with the current edition of ISS Section 203.09. The final decision regarding stabilization, if necessary, should be made at the time of construction, based on the observed actual conditions.

Engineered Fill Placement and Compaction

We recommend that engineered fill used to raise grades or backfill of undercut areas be placed in loose lift thicknesses not exceeding 8-in. and be compacted to 95 percent of the maximum density obtained in accordance with AASHTO T 99 as specified in the ISS. In our opinion, the soils as observed at the test boring locations are generally suitable for reuse as engineered fill. However, at several boring locations trace amounts of organic matter were typically observed within the upper 2 to 3 ft of the profile. Based on the moisture contents of these soils, it is our opinion that these soils can be reused as fill in landscaped areas. The decision to reuse these soils should be made in the field at the time of construction based on visual inspection and additional laboratory testing. If concentrated areas of organic matter are encountered during grading operations, they should be completely removed and replaced with inorganic fill soils.

From our observations, the natural moisture content of the cohesive soils will typically exceed the optimum. Therefore, it is likely that some drying (by aeration) of the fill will be required before placement in order to satisfy the ISS if these soils are utilized. Aeration of the soils will also be required where encountered within the range of subgrade treatment. Under some climatic conditions, such as cold or rainy weather, or in confined areas, adequate moisture conditioning may be difficult to achieve, and in this case, granular fill could be required to expedite construction activities.

Excavations

Excavations made for the project will require: 1) cut slopes adequate to prevent cave-ins/subsidence; or 2) braced excavations for safe construction operation. All excavations should conform with Occupational Safety and Health Administration (OSHA) requirements (i.e., 29 CFR Part 1926). The Contractor is solely responsible for constructing and maintaining stable excavations. Additionally, soil should not be stockpiled immediately adjacent to the top of the excavation. In our opinion, the cohesive soil encountered on this project may be classified as Type A or B depending on their strength characteristics and the granular soils may be classified as Type C (according to OSHA), and should be treated accordingly.

Mr. Michael J. Obergfell, P.E.
USI Consultants, Inc.

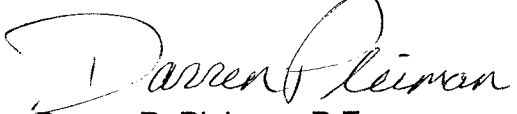
CONCLUDING REMARKS

In closing, we recommend that EEI be provided the opportunity to review the final design and project specifications to confirm that earthwork and foundation requirements have been properly interpreted and implemented in the design and specifications. We also recommend that EEI be retained to provide construction observation services during the earthwork and foundation construction phases of the project. This will allow us to verify that the construction proceeds in compliance with the design concepts, specifications and recommendations. It will also allow design changes to be made in the event that subsurface conditions differ from those anticipated.

We appreciate the opportunity to provide our services to you on this project. Please contact our office if you have any questions or need further assistance with the project.

Sincerely,

EARTH EXPLORATION, INC.



Darren R. Pleiman, P.E.
Senior Geotechnical Engineer

Scott J. Ludlow, Ph.D., P.E.
Principal Engineer

Attachments –

APPENDIX A - Important Information about Your Geotechnical Report
APPENDIX B - Field Methods for Exploring and Sampling Soils and Rock
APPENDIX C - Test Boring Location Plan (Drawing No. 1-03-344.B1)
- Log of Test Boring - General Notes
Log of Test Boring - Structure Borings (5)
Log of Test Boring - Road Borings (36)
Summary of Soundings
Summary of Pavement Cores
APPENDIX D - Summary of Special Laboratory Test Results
Summary of Classification Test Results
Grain Size Distribution Curve (7)
Unconfined Compression Test (3)
Moisture Density Relations (2)
Summary of CBR Test Results (2)
California Bearing Ratio (2)
Resilient Modulus of Subgrade Soils (performed by others)

APPENDIX A

IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

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

Read the full report

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

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

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

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

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

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

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

Subsurface Conditions Can Change

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

Most Geotechnical Findings Are Professional Opinions

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

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject To Misinterpretation

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

Do Not Redraw the Engineer's Logs

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

Give Contractors a Complete Report and Guidance

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

Read Responsibility Provisions Closely

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

Geoenvironmental Concerns Are Not Covered

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

Rely on Your Geotechnical Engineer for Additional Assistance

Membership in ASFE exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

8811 Colesville Road Suite G106 Silver Spring, MD 20910
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UGER1000.10M

APPENDIX B

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

A. Boring Procedures Between Samples

The boring is extended downward, between samples, by a hollow stem auger (AASHTO* Designation T251-77), a continuous flight auger, driven and washed-out casing, or rotary boring with drilling mud or water.

B. Penetration Test and Split-Barrel Sampling of Soils
(AASHTO* Designation: T206-87)

This method consists of driving a 2-inch outside diameter split-barrel sampler using a 140 pound weight falling freely through a distance of 30 inches. The sampler is first seated 6-inches into the material to be sampled and then driven 12 inches. The number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance or N-Value. The blow counts are reported on the Test Boring Records per 6 inch increment. Recovered samples are first classified as to texture by the driller. Later, in the laboratory the driller's classification is reviewed by a soils engineer who examines each sample.

C. Thin-walled Tube Sampling of Soils
(AASHTO* Designation: T207-87)

This method consists of pushing a 2-inch or 3-inch outside diameter thin wall tube by hydraulic or other means into soils, usually cohesive types. Relatively undisturbed samples are recovered.

D. Soil Investigation and Sampling by Auger Borings
(AASHTO* Designation: T203-82)

This method consists of augering a hole and removing representative soil samples from the auger flight or bucket at 5-foot intervals or with each change in the substrata. Relatively disturbed samples are obtained and its use is therefore limited to situations where it is satisfactory to determine approximate subsurface profile.

E. Diamond Core Drilling for Site Investigation
(AASHTO* Designation: T225-83)

This method consists of advancing a hole in bedrock or other hard strata by rotating downward a single tube or double tube core barrel equipped with a cutting bit. Diamond, tungsten carbide, or other cutting agents may be used for the bit. Wash water is used to remove the cuttings. Normally, a 3-inch outside diameter by 2-inch inside diameter coring bit is used unless otherwise noted. The rock or hard material recovered within the core barrel is examined in the field and laboratory. Cores are stored in partitioned boxes and the length of recovered material is expressed as a percentage of the actual distance penetrated.

* American Association of State Highway and Transportation Officials, Washington D.C.

APPENDIX C

TEST BORING LOCATION PLAN
(Drawing No. 1-03-344.B1)

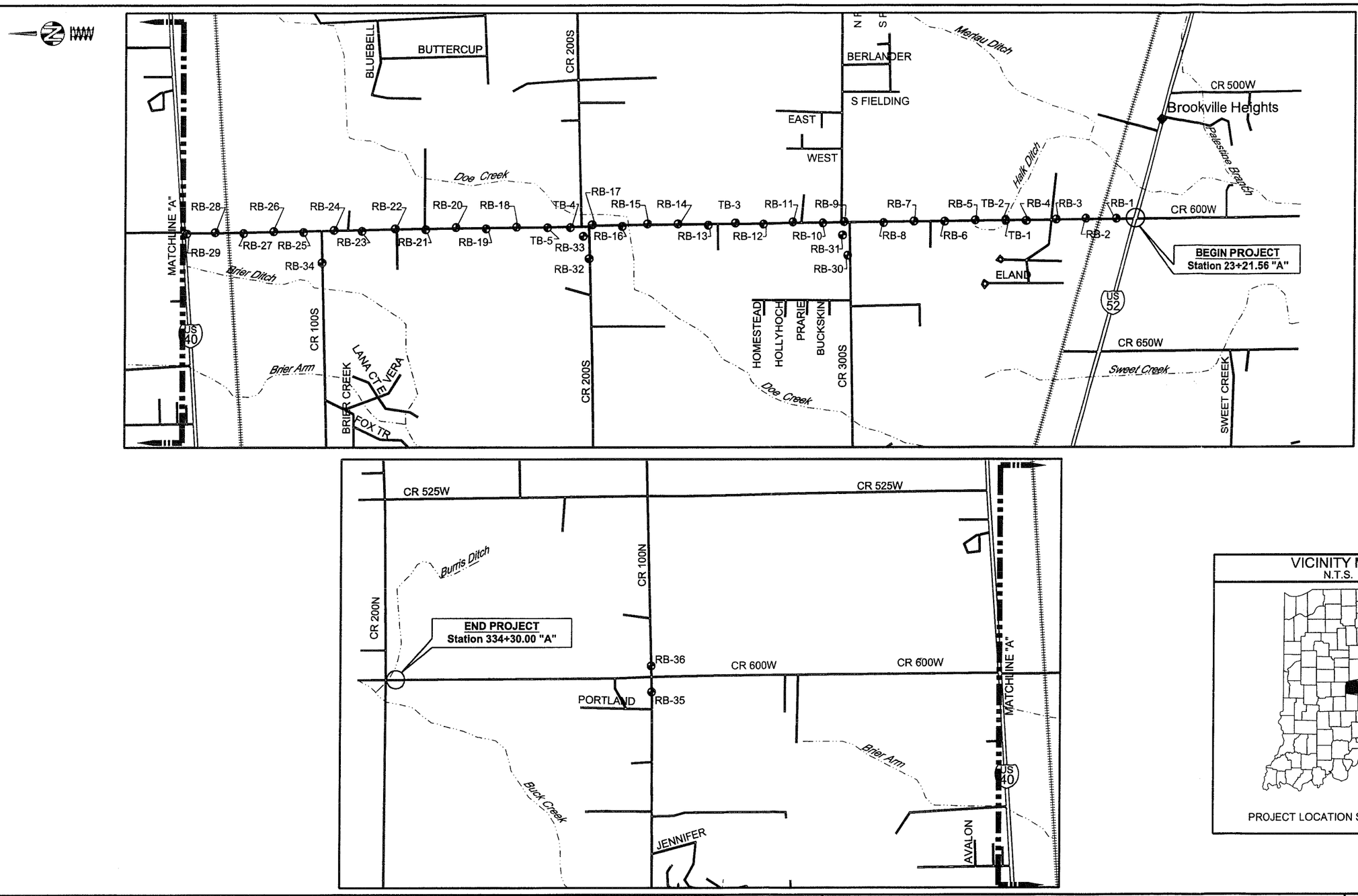
LOG OF TEST BORING - GENERAL NOTES

LOG OF TEST BORING - STRUCTURE BORINGS (5)

LOG OF TEST BORING - ROAD BORINGS (36)

SUMMARY OF SOUNDINGS

SUMMARY OF PAVEMENT CORES



VICINITY MAP
N.T.S.

PROJECT LOCATION SHOWN BY

LEGEND

TB-1 Test Boring Location and Designation

NOTES

1. Base map generated using commercially available software by DeLorme (Street Atlas USA ver. 3.0).
2. Refer to the Log of Test Boring (41) in Appendix D for a description of the subsurface conditions encountered at the test boring locations.
3. Borings were located in the field by Earth Exploration, Inc. on October 17, 2003.
4. Pavement corings not shown for clarity.
5. Boring locations are approximate.

TEST BORING LOCATION PLAN

PROJECT:	CR 600W, US 52 to CR 200N
PROJECT NO.:	STP-9930(029)
LOCATION:	Hancock County, Indiana
CLIENT:	USI Consultants
EEI PROJECT NO.:	1-03-344
SCALE:	1" = 2000'

PROJECT ENGINEER:	DRP
APPROVED BY:	SJL
DRAWN BY:	AJH
DATE AND TIME:	11-03-03 11:42:12
DRAWING NUMBER:	1-03-344.B1

EARTH EXPLORATION
7770 West New York Street
Indianapolis, IN 46214-2988
317-273-1690
(FAX) 317-273-2250

LOG OF TEST BORING - GENERAL NOTES

DESCRIPTIVE SOIL CLASSIFICATION

GRAIN SIZE TERMINOLOGY

Soil Fraction		Particle Size	US Standard Sieve Size
Boulders		Larger than 75 mm	Larger than 3"
Gravel		2.00 to 75 mm	#10 to 75 mm
Sand:	Coarse	0.425 to 2.00 mm	#40 to #10
	Fine	0.075 to 0.425 mm	#200 to #40
Silt		0.002 to 0.075 mm	Smaller than #200
Clay		Smaller than 0.002 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

GENERAL TERMINOLOGY

Physical Characteristics
- Color, moisture, grain shape, fineness, etc.

Major Constituents
- Clay, silt, sand, gravel

Structure
- Laminated, varved, fibrous, stratified, cemented, fissured, etc.

Geologic Origin
- Glacial, alluvial, eolian, residual, etc.

RELATIVE PROPORTIONS OF COHESIONLESS SOILS

Term	Defining Range by % of Weight
Trace	1 - 10%
Little	11 - 20%
Some	21 - 35%
And	36 - 50%

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	LOI
w/ trace organic matter	1 - 6%
w/ little organic matter	7 - 12%
w/ some organic matter	13 - 18%
Organic Soil (A-8)	19 - 30%
Peat (A-8)	More than 30%

RELATIVE DENSITY

Term	"N" Value
Very loose	0 - 5
Loose	6 - 10
Medium dense	11 - 30
Dense	31 - 50
Very Dense	51+

CONSISTENCY

Term	"N" Value
Very soft	0 - 3
Soft	4 - 5
Med stiff	6 - 10
Stiff	11 - 15
Very Stiff	16 - 30
Hard	31+

PLASTICITY

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

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

SYMBOLS

DRILLING AND SAMPLING

AS - Auger Sample
BS - Bag Sample
C - Casing: Size 2½", NW; 4", HW
COA - Clean-Out Auger
CS - Continuous Sampling
CW - Clear Water
DC - Driven Casing
DM - Drilling Mud
FA - Flight Auger
FT - Fish Tail
HA - Hand Auger
HSA - Hollow Stem Auger
NR - No Recovery
PMT - Borehole Pressuremeter Test
PT - 3" O.D. Piston Tube Sample
PTS - Peat Sample
RB - Rock Bit
RC - Rock Coring
REC - Recovery
RQD - Rock Quality Designation
RS - Rock Sounding
S - Soil Sounding
SS - 2" O.D. Split-Barrel Sample
2ST - 2" O.D. Thin-Walled Tube Sample
3ST - 3" O.D. Thin-Walled Tube Sample
VS - Vane Shear Test
WPT - Water Pressure Test

LABORATORY TESTS

qp - Penetrometer Reading, tsf
qu - Unconfined Strength, tsf
W - Moisture Content, %
LL - Liquid Limit, %
PL - Plastic Limit, %
PI - Plasticity Index
SL - Shrinkage Limit, %
LOI - Loss on Ignition, %
γ - Dry Unit Weight, pcf
pH - Measure of Soil Alkalinity/Acidity

WATER LEVEL MEASUREMENT

BF - Backfilled upon Completion
NW - No Water Encountered

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

EARTH EXPLORATION Inc.

LOG OF TEST BORING

EARTH EXPLORATION, INC.

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. TB-1
Elevation 828.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Cloudy 60° F	Driller	B.J.
Des. No.	0300444	Station	48+90	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (5 in.)							
SS-1	X	20	11-18-29			**SAND AND GRAVEL**, dense, moist, brown, (fill; visual)							
					825								
SS-2	X	80	2-3-5	5		**LOAM**, medium stiff, moist, brown, (fill), A-4, Lab No. 5867SL	2.0			13.8			
SS-3	X	15	5-7-10			**SANDY LOAM**, medium dense, moist, brown, (fill; visual)							
					820								
SS-4	X	100	5-6-8	10			>4.5	6.25	134.8	10.0			
SS-5	X	100	6-8-12				>4.5			8.8			
					815								
SS-6	X	100	4-7-9	15		**LOAM**, stiff to very stiff, moist, gray, with occasional wet sand seams from 13' to 18' and silt seams near 18½', A-4, Lab No. 5866SL	2.0			10.1			
SS-7	X	100	4-7-9				2.75			10.0			
					810								
SS-8	X	80	7-12-17	20			>4.5			---			
						End of Boring at 20 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ 24 hrs After Drilling
To Water	6	NW	5½
To Cave-in		17½	15

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

GENERAL NOTES

Start 10/22/03 End 10/22/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. TB-2
Elevation 827.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Cloudy 60° F	Driller	B.J.
Des. No.	0300444	Station	49+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (5 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	90	5-3-3		825	**CLAY LOAM**, medium stiff to soft, moist, brown, (fill), A-6, Lab No. 5864SL	1.5			19.6			
SS-2	X	100	2-2-2	5			1.0			23.2			
SS-3	X	100	5-8-10		820	**LOAM**, soft to very stiff, moist, brown, with occasional sand seams, A-4, Lab No. 5867SL	>4.5	4.05	127.8	12.7			
SS-4	X	100	4-5-6	10			3.5			10.1			
SS-5	X	65	7-10-11		815	**LOAM**, medium stiff to very stiff, moist, gray, with occasional wet sand seams near 13½', A-4, Lab No. 5866SL	2.0			8.7			
SS-6	X	100	3-4-6	15			0.5			9.9			
SS-7	X	100	4-6-8		810		2.5			9.6			
SS-8	X	100	13-19-23	20		**SILTY CLAY**, hard, moist, gray, (visual)	>4.5			14.3			
						End of Boring at 20 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	NW	18	BF
To Cave-in		18½	

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

GENERAL NOTES

Start 10/22/03 End 10/22/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

EARTH EXPLORATION Inc
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. TB-3
Elevation 839.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 70° F	Driller	B.J.
Des. No.	0300444	Station	102+50	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (8 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1		65	2-3-4			**CLAY LOAM**, medium stiff, moist, dark brown, with trace organic matter (fill), A-6, Lab No. 5864SL SS-1 LOI = 4.3%	2.0			19.4			
SS-2		100	3-3-4	5	835	**CLAY LOAM**, medium stiff, moist, brown and gray, A-6, Lab No. 5865SL	2.0			20.3			
SS-3		100	7-10-10			**LOAM**, very stiff, moist, brown, with occasional wet sand seams, A-4, Lab No. 5867SL	3.0			10.6			
SS-4		100	7-7-6	10	830	**SILTY CLAY**, stiff, moist, gray, with occasional silt seams (visual)	2.5			20.3			
SS-5		100	5-6-6			**LOAM**, stiff to very stiff, moist, gray, with ocasional wet sand seams, A-4, Lab No. 5867SL	2.5			11.9			
SS-6		100	6-8-9	15	825		2.5			11.3			
						End of Boring at 15 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	6	9	BF
To Cave-in		11	

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

GENERAL NOTES

Start 10/22/03 End 10/22/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. TB-4
Elevation 842.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 60° F	Driller	B.J.
Des. No.	0300444	Station	135+40	Offset	6 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (8 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	100	3-3-4		840	**LOAM**, medium stiff, moist, gray, with trace organic matter, A-4, Lab No. 5863SL	1.5			25.1			
SS-2	X	100	2-1-1	5		**CLAY LOAM**, medium stiff to very soft, moist, brown and gray, A-7-6, Lab No. 5865SL	0.5			31.9			
SS-3	X	100	4-5-6		835		>4.5			11.0	17	15	2
SS-4	X	100	5-6-9	10		**LOAM**, medium stiff to very stiff, moist, brown and gray, A-4(0), Lab No. 5867SL	4.0			13.1			
SS-5	X	100	4-4-5		830		3.5			11.5			
SS-6	X	100	5-7-11	15			>4.5			8.5			
						End of Boring at 15 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	NW	NW	BF
To Cave-in		12½	

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

GENERAL NOTES

Start 10/23/03 End 10/23/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION Inc

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. TB-5
Elevation 841.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 60° F	Driller	B.J.
Des. No.	0300444	Station	139+75	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (9 in.)							
SS-1		65	2-3-5		840	**GRANULAR SUBBASE**, (sand and gravel)							
						CLAY LOAM, medium stiff, moist, dark gray, A-6, Lab No. 5864SL	2.5			22.8			
SS-2		55	2-3-4	5		**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	1.75			23.3			
SS-3		100	4-4-5		835		2.25	3.02	128.3	12.1			
SS-4		100	4-5-6	10		**LOAM**, medium stiff to stiff, moist, brown to gray below 9', with occasional wet sand seams below 9', A-4, Lab No. 5867SL	4.0			11.3			
SS-5		100	3-5-7		830		2.5			10.9			
SS-6		100	4-6-7	15			>4.5			10.0			
						End of Boring at 15 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	6	NW	BF
To Cave-in		15	

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

GENERAL NOTES

Start 10/23/03 End 10/23/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-1
Elevation 824.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 60° F	Driller	B.J.
Des. No.	0300444	Station	27+10	Offset	10 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (8 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	100	2-2-2				0.5			19.2	32	13	19
SS-2	X	0	5-7-7		820	**SANDY CLAY LOAM**, soft to stiff, moist, brown, A-6(5), Lab No. 5861SL							
				5									
SS-3	X	100	4-5-7			**LOAM**, stiff, moist, brown, A-4, Lab No. 5862SL	>4.5			12.1			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ 72 hrs After Drilling
To Water	NW	NW	NW
To Cave-in		6	5½

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

GENERAL NOTES

Start 10/24/03 End 10/24/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

EARTH EXPLORATION, Inc.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-2
Elevation 825.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 68° F	Driller	B.J.
Des. No.	0300444	Station	33+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (8 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	65	4-3-4			**CLAY LOAM**, medium stiff, moist, gray, (fill), A-6, Lab No. 5864SL	4.0			13.3			
SS-2	X	90	2-3-3	5	820	**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	3.5			25.3			
SS-3	X	100	4-5-7			**LOAM**, stiff, moist, brown, with occasional wet sand seams, A-4, Lab No. 5862SL	3.0			10.8			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ 72 hrs After Drilling
To Water	6	6	NW
To Cave-in		6½	1½

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

GENERAL NOTES

Start 10/24/03 End 10/24/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-3
Elevation 830.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 68° F	Driller	B.J.
Des. No.	0300444	Station	39+00	Offset	7 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (8 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	65	6-3-4				4.0			17.8			
SS-2	X	100	5-7-7			**LOAM**, medium stiff to stiff, moist, brown and gray, A-4 Lab No. 5867SL	>4.5			7.6			
				5	825								
SS-3	X	65	2-2-2	▽			2.0			14.8			
						SANDY LOAM, very loose, wet, gray, (visual)							
SS-4	X	90	8-10-11			**LOAM**, very stiff, moist, gray, with occasional silt seams, A-4, Lab No. 5862SL	>4.5			11.4			
				10	820								
						End of Boring at 10 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	7	5	BF
To Cave-in		8	

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

GENERAL NOTES

Start 10/24/03 End 10/24/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

EARTH EXPLORATION Inc

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-4
Elevation 834.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 70° F	Driller	B.J.
Des. No.	0300444	Station	45+00	Offset	8 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (8 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1		80	2-3-5			**CLAY LOAM**, medium stiff, moist, brown and gray, A-6, Lab No. 5864SL	2.5			21.3			
						SANDY CLAY LOAM, medium stiff, moist, brown, A-6, Lab No. 5861SL							
SS-2		100	1-1-2		830		0.5			13.5			
				5		**LOAM**, very soft to medium stiff, moist, brown, with occasional wet sand seams, A-4, Lab No. 5862SL							
SS-3		100	2-3-4				2.5			29.8			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	6	6	BF
To Cave-in		7	

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

GENERAL NOTES

Start 10/24/03 End 10/24/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-5
Elevation 830.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 60° F	Driller	B.J.
Des. No.	0300444	Station	55+00	Offset	7 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (9 in.)							
						GRANULAR SUBBASE, (crushed stone)							
SS-1	X	65	2-3-4			**LOAM**, medium stiff, moist, dark gray, (fill), A-4, Lab No. 5863SL	3.0			15.9			
SS-2	X	90	2-4-2			**CLAY LOAM**, medium stiff, moist, brown and gray, (possible fill), A-7-6, Lab No. 5865SL	1.0			21.1			
				5	825								
SS-3	X	100	7-7-9			**LOAM**, very stiff, moist, gray, A-4, Lab No. 5862SL	3.5			11.9			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	⩛ After Drilling
To Water			
To Cave-in			

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

GENERAL NOTES

Start 10/22/03 End 10/22/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-6
Elevation 832.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 68° F	Driller	B.J.
Des. No.	0300444	Station	61+00	Offset	6 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (8 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	90	2-3-4		830	**SANDY CLAY LOAM**, medium stiff to soft, moist, brown, with occasional wet sand seams, A-6, Lab No. 5861SL	2.0			19.7			
SS-2	X	100	1-2-3	5			0.5			21.3			
SS-3	X	20	7-8-11		825	**LOAM**, very stiff, moist, brown, A-4, Lab No. 5862SL	>4.5			9.9			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/24/03 End 10/24/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION Inc

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-7
Elevation 835.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 70° F	Driller	B.J.
Des. No.	0300444	Station	67+00	Offset	4 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
					835	**ASPHALTIC CONCRETE**, (9 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	65	3-3-4			**CLAY LOAM**, medium stiff, moist, brown and gray, with trace roots and organic matter, A-6, Lab No. 5864SL SS-1: LOI = 5.1%	1.5			21.0			
SS-2	X	80	2-2-3	5	830	**CLAY LOAM**, soft, moist, brown and gray, A-7-6, Lab No. 5865SL	1.5			23.8			
SS-3	X	100	2-3-3			**LOAM**, medium stiff to very stiff, brown to gray below 8½', A-4, Lab No. 5862SL	1.5			12.2			
SS-4	X	100	6-8-9	10			>4.5			11.4			
						End of Boring at 10 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	NW	NW	BF
To Cave-in		10	

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

GENERAL NOTES

Start 10/24/03 End 10/24/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-8
Elevation 839.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 60° F	Driller	B.J.
Des. No.	0300444	Station	73+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (5 in.)							
SS-1	X	80	4-5-5				>4.5			11.3	23	14	9
						LOAM, medium stiff to stiff, moist, brown, with shale fragment near 5', A-4(3), Lab No. 5862SL							
SS-2	X	100	2-3-4		835		>4.5			12.5			
				5									
SS-3	X	100	3-5-7				>4.5			11.9			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/22/03 End 10/22/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

Boring No. RB-9
Elevation 838.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Cloudy 51° F	Driller	E.D.
Des. No.	0300444	Station	80+85	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (12 in.)							
				0		**GRANULAR SUBBASE** (sand and gravel)							
SS-1	X	100	8-5-4			**LOAM**, medium stiff, moist, dark brown and gray, (fill), A-4(2), Lab No. 5863SL	2.0			14.4	26	17	9
					835								
SS-2	X	85	3-3-4				2.5			22.5			
				5		**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL							
SS-3	X	80	3-4-4				2.25			16.5			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	⊻ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/29/03 End 10/29/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-10
Elevation 840.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Cloudy 60° F	Driller	B.J.
Des. No.	0300444	Station	85+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
				0		**ASPHALTIC CONCRETE** (7 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	80	8-6-4			**LOAM**, medium stiff, moist, gray, (fill), A-4, Lab No. 5863SL	>4.5			8.5			
SS-2	X	100	2-3-5			**CLAY LOAM**, medium stiff, moist, brown and gray, with occasional wet sand seams, A-6, Lab No. 5864SL	2.5			14.0			
				5	835								
SS-3	X	100	5-8-10			**LOAM**, very stiff to medium stiff, moist, brown and gray to gray below 8', A-4, Lab No. 5863SL	1.25			20.7			
SS-4	X	100	3-4-5				4.25			13.3			
				10	830	End of Boring at 10 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	6	8	BF
To Cave-in		8½	

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

GENERAL NOTES

Start 10/22/03 End 10/22/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-11
Elevation 840.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 46° F	Driller	E.D.
Des. No.	0300444	Station	91+00	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (10 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	90	3-4-4			**CLAY LOAM**, medium stiff, moist, dark brown and gray, A-6, Lab No. 5864SL	3.25			19.1			
SS-2	X	85	3-4-4	5	835	**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	2.5			24.7			
SS-3	X	100	3-4-5				4.0			13.9			
SS-4	X	100	4-7-9			**LOAM**, very stiff, moist, brown, A-4, Lab No. 5863SL	>4.5			10.2			
				10	830	End of Boring at 10 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		8	

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

GENERAL NOTES

Start 10/29/03 End 10/29/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

Boring No. RB-12
Elevation 840.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 65° F	Driller	B.J.
Des. No.	0300444	Station	97+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
				0	840	**ASPHALTIC CONCRETE** (7 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	90	3-4-6			**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	3.25			19.5			
SS-2	X	100	4-5-7				4.25			12.2			
				5	835								
SS-3	X	100	4-5-6			**LOAM**, stiff to very stiff, moist, brown and gray to brown below 6', A-4, Lab No. 5863SL	2.5			13.1			
SS-4	X	100	6-7-13				>4.5			9.4			
				10		End of Boring at 10 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		8	

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

GENERAL NOTES

Start 10/22/03 End 10/22/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-13
Elevation 841.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 48° F	Driller	E.D.
Des. No.	0300444	Station	108+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (8 in.)							
					840	**GRANULAR SUBBASE**, (sand and gravel)							
SS-1	X	100	3-3-4			**LOAM**, medium stiff, moist, gray, with trace organic matter (fill), A-4, Lab No. 5863SL SS-1 LOI = 5.2%	2.5			24.9			
SS-2	X	100	3-4-4	5		**CLAY LOAM**, medium stiff, moist, dark gray to brown and gray below 3½', A-7-6, Lab No. 5865SL	1.5			21.4			
SS-3	X	65	3-4-5		835	**LOAM**, medium stiff, moist, brown and gray, A-4, Lab No. 5867SL	3.0			19.2			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/29/03 End 10/29/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-14
Elevation 845.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 70° F	Driller	B.J.
Des. No.	0300444	Station	114+00	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (8 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	80	5-4-5			**CLAY LOAM**, medium stiff, moist, brown and gray, A-6, Lab No. 5864SL	2.5			24.8			
SS-2	X	100	2-3-4	5	840	**LOAM**, medium stiff, moist, brown and gray, A-4, Lab No. 5867SL	>4.5			13.6			
SS-3	X	100	5-5-6			**LOAM**, stiff, moist, brown, A-4, Lab No. 5862SL	3.0			12.3			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/23/03 End 10/23/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-15
Elevation 841.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 70° F	Driller	B.J.
Des. No.	0300444	Station	120+00	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (9 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	65	4-5-5		840	**CLAY LOAM**, medium stiff, moist, dark gray, with trace organic matter, A-6, Lab No. 5864SL	2.75			22.9			
SS-2	X	55	2-3-3	5		**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	1.75			24.1			
SS-3	X	100	4-4-6		835	**LOAM**, medium stiff, moist, brown, with occasional sand seams, A-4, Lab No. 5862SL	3.0			12.2			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ 72 hrs After Drilling
To Water	NW	NW	3½
To Cave-in		7	6½

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

GENERAL NOTES

Start 10/23/03 End 10/23/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-16
Elevation 840.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 70° F	Driller	B.J.
Des. No.	0300444	Station	125+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
					840	**ASPHALTIC CONCRETE**, (8 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	65	3-4-4			**CLAY LOAM**, medium stiff, moist, dark gray, with trace organic matter, A-6, Lab No. 5864SL SS-1 LOI = 5.1%	3.25			18.5			
SS-2	X	80	2-3-3	5	835	**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	1.75			21.3			
SS-3	X	100	4-6-8			**LOAM**, stiff, moist, brown, A-4, Lab No. 5862SL	4.5			11.4			

End of Boring at 7.5 ft

Bulk sample (BS-1) obtained from 1.0' to 3.0'
LL = 30%, PL = 18%, PI = 12%

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/23/03 End 10/23/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-17
Elevation 842.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 60° F	Driller	B.J.
Des. No.	0300444	Station	131+18	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (9 in.)							
SS-1		80	3-4-5		840	**CLAY LOAM**, medium stiff, moist, brown and gray, A-6, Lab No. 5864SL	1.75			11.7			
SS-2		90	2-3-5	5		**SANDY CLAY LOAM**, medium stiff, moist, brown and gray, A-6, Lab No. 5861SL	>4.5			11.5			
SS-3		100	3-4-4		835	**LOAM**, medium stiff, moist, brown, A-4, Lab No. 5866SL	3.5			13.3			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/23/03 End 10/23/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-18
Elevation 843.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 60° F	Driller	B.J.
Des. No.	0300444	Station	146+00	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (6 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	65	3-5-6			**CLAY LOAM**, stiff, moist, dark gray, A-6, Lab No. 5864SL	2.5			20.5			
					840								
SS-2	X	80	2-3-3	5		**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	1.5			24.2			
SS-3	X	100	3-4-6			**LOAM**, medium stiff, moist, brown, A-4, Lab No. 5867SL	>4.5			11.2			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		7	

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

GENERAL NOTES

Start 10/23/03 End 10/23/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-19
Elevation 845.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 60° F	Driller	B.J.
Des. No.	0300444	Station	152+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
					845	**ASPHALTIC CONCRETE** (7 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	55	2-3-3			**CLAY LOAM**, medium stiff, moist, brown and gray, A-6, Lab No. 5864SL	2.25			20.1			
SS-2	X	100	2-3-4	5	840	**LOAM**, medium stiff, moist, brown and gray to brown below 6', A-4, Lab No. 5866SL	4.0			10.6			
SS-3	X	100	3-4-5				3.5			12.6			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		7	

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

GENERAL NOTES

Start 10/23/03 End 10/23/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-20
Elevation 846.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 60° F	Driller	B.J.
Des. No.	0300444	Station	158+00	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (6 in.)							
					845	**GRANULAR SUBBASE**, (sand and gravel)							
SS-1	X	35	3-3-4			**LOAM**, medium stiff, moist, gray, with trace organic matter, slight petroleum odor, A-4, Lab No. 5863SL SS-1 LOI = 7.4%	2.0			23.7			
SS-2	X	100	1-2-3			**SANDY CLAY LOAM**, soft, moist, brown and gray, A-6, Lab No. 5861SL	0.75			23.1			
				5 ▼	840								
SS-3	X	100	6-7-8			**LOAM**, stiff, moist, brown, A-4, Lab No. 5866SL	3.0			12.9			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	5½	BF
To Cave-in		7	

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

GENERAL NOTES

Start 10/23/03 End 10/23/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

Boring No. RB-21
Elevation 847.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 60° F	Driller	B.J.
Des. No.	0300444	Station	164+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (7 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	80	2-3-5		845	**SANDY CLAY LOAM**, medium stiff, moist, brown and gray, A-6, Lab No. 5861SL	1.5			17.2			
SS-2	X	100	4-5-7	5		**LOAM**, stiff to medium stiff, moist, brown, A-4, Lab No. 5866SL	>4.5			10.8			
SS-3	X	100	3-4-4		840		3.75			10.6			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ 72 hrs After Drilling
To Water	NW	NW	2
To Cave-in		7	2

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

GENERAL NOTES

Start 10/23/03 End 10/23/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-22
Elevation 848.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Rainy 40° F	Driller	E.D.
Des. No.	0300444	Station	169+90	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
				0		**ASPHALTIC CONCRETE**, (11 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	100	4-4-5			**CLAY LOAM**, medium stiff, moist, gray, with trace organic matter, A-6, Lab No. 5864SL	2.0			26.1			
					845	SS-1 LOI = 5.2%							
SS-2	X	100	3-4-5			**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	3.0			25.4			
				5									
SS-3	X	100	4-5-6			**LOAM**, stiff, moist, brown and gray, A-4, Lab No. 5867SL	1.0			21.0			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/28/03 End 10/28/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION Inc

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-23
Elevation 850.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Rainy 46° F	Driller	E.D.
Des. No.	0300444	Station	176+50	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
					850	**ASPHALTIC CONCRETE** (8 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	100	6-6-5			**CLAY LOAM**, stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	2.75			16.2			
SS-2	X	100	3-3-4	5		**LOAM**, medium stiff to stiff, moist, brown and gray, A-4, Lab No. 5867SL	3.0			11.6			
					845								
SS-3	X	100	4-5-6				>4.5			12.2			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/28/03 End 10/28/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-24
Elevation 849.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Rainy 46° F	Driller	E.D.
Des. No.	0300444	Station	182+00	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (9 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	85	4-5-6			**CLAY LOAM**, stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	1.0			25.8			
SS-2	X	80	3-4-4	5	845	**LOAM**, medium stiff to stiff, moist, brown and gray, A-4, Lab No. 5867SL	1.5			14.4			
SS-3	X	100	5-7-8				3.0			12.0			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/28/03 End 10/28/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

EARTH EXPLORATION Inc
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-25
Elevation 850.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Rainy 47° F	Driller	E.D.
Des. No.	0300444	Station	188+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (9 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	100	5-6-6				1.25			25.1			
						CLAY LOAM, stiff to medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL							
SS-2	X	85	3-4-4				0.5			28.6			
				5	845								
SS-3	X	100	3-4-4			**LOAM**, medium stiff, moist, brown and gray, A-4, Lab No. 5867SL	1.75			13.1			
						End of Boring at 7.5 ft							
						Bulk sample (BS-1) obtained from 1.0' to 2.5' 20' Rt. "A" LL = 41%, PL = 16%, PI = 25%							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/28/03 End 10/28/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-26
Elevation 850.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Rainy 48° F	Driller	E.D.
Des. No.	0300444	Station	194+00	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (9 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	80	5-6-6			**CLAY LOAM**, stiff, moist, gray to brown and gray below 2', A-7-6, Lab No. 5865SL	1.25			23.1			
SS-2	X	85	3-3-4	5	845	**SANDY CLAY LOAM**, medium stiff, moist, brown and gray, A-6, Lab No. 5861SL	0.75			20.6			
SS-3	X	65	3-4-4				0.5			15.9			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/28/03 End 10/28/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

EARTH EXPLORATION Inc

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-27
Elevation 852.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 48° F	Driller	E.D.
Des. No.	0300444	Station	200+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (10 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	85	3-4-6		850	**CLAY LOAM**, medium stiff, moist, brown, with trace organic matter, A-6, Lab No. 5864SL	2.5			20.7			
SS-2	X	100	2-3-3	5		**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	0.5			25.9			
SS-3	X	80	3-3-4		845	**LOAM**, medium stiff, moist, brown and gray, A-4, Lab No. 5867SL	1.5			12.9			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/29/03 End 10/29/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-28
Elevation 852.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Rainy 49° F	Driller	E.D.
Des. No.	0300444	Station	206+00	Offset	5 ft Rt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
				0		**ASPHALTIC CONCRETE** (8 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	100	5-5-5		850	**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	1.25			22.7			
SS-2	X	100	4-5-6	5		**LOAM**, medium stiff to very stiff, moist, brown and gray, A-4, Lab No. 5866SL	2.5			13.1			
SS-3	X	100	5-7-9		845		3.25			11.9			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/28/03 End 10/28/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-29
Elevation 851.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 48° F	Driller	E.D.
Des. No.	0300444	Station	212+00	Offset	5 ft Lt. "A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
					850	**ASPHALTIC CONCRETE**, (9 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	65	4-5-5			**CLAY LOAM**, medium stiff, moist, dark gray, with trace field tile (fill), A-7-6, Lab No. 5865SL	2.5			21.9			
SS-2	X	100	3-3-4	5		**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	1.0			20.4			
SS-3	X	100	3-3-4		845	**SANDY CLAY LOAM**, medium stiff, moist, brown and gray, A-6, Lab No. 5861SL	1.0			17.6			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/29/03 End 10/29/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-30
Elevation 835.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 49° F	Driller	E.D.
Des. No.	0300444	Station	3+50	Offset	5 ft Rt. "S-1-A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
					835	**ASPHALTIC CONCRETE**, (10 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	85	3-4-4			**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	1.5			25.4			
SS-2	X	100	3-4-5				3.5			11.5			
				5	830	**LOAM**, medium stiff to stiff, moist, brown and gray to brown below 6', A-4, Lab No. 5866SL							
SS-3	X	100	4-5-7				>4.5			10.5			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/29/03 End 10/29/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-31
Elevation 836.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 48° F	Driller	E.D.
Des. No.	0300444	Station	8+00	Offset	90 ft Rt. "S-1-A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (10 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	85	3-3-4		835		2.0			21.0			
SS-2	X	100	3-3-3	5		**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	2.0			23.0			
SS-3	X	90	3-4-4		830		1.5			25.5			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/29/03 End 10/29/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

EARTH EXPLORATION Inc

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

Boring No. RB-32
Elevation 840.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Sunny 48° F	Driller	E.D.
Des. No.	0300444	Station	3+50	Offset	10 ft Rt. "S-2-A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
					840	**ASPHALTIC CONCRETE**, (8 in.)							
						GRANULAR SUBBASE, (sand and gravel)							
SS-1	X	85	3-4-5			**CLAY LOAM**, medium stiff, moist, brown, (fill), A-6, Lab No. 5864SL	2.5			22.0			
SS-2	X	80	3-3-4	5	835	**CLAY LOAM**, medium stiff, moist, brown and gray, A-7-6, Lab No. 5865SL	1.25			19.6			
SS-3	X	45	4-5-5				1.75			22.0			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	While Drilling	Upon Completion	After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/29/03 End 10/29/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

Boring No. RB-33
Elevation 842.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Cloudy 49° F	Driller	E.D.
Des. No.	0300444	Station	8+00	Offset	100 ft Rt. "S-2-A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (8 in.)							
				0.5		**GRANULAR SUBBASE**, (sand and gravel)							
SS-1	X	100	3-4-5		840	**CLAY LOAM**, medium stiff, moist, brown, (fill), A-7-6, Lab No. 5865SL	2.5			22.6			
				3		End of Boring at 3 ft							
						Boring terminated due to obstruction at 3' (possible unmarked utility)							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		3	

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

GENERAL NOTES

Start 10/29/03 End 10/29/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

EARTH EXPLORATION, Inc.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

Boring No. RB-34
Elevation 850.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Rainy 47° F	Driller	E.D.
Des. No.	0300444	Station	24+15	Offset	C.L. "S-3-A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE (5 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	15	6-6-8				---			---			
						SANDY CLAY LOAM, stiff to medium stiff, moist, brown and gray, (possible fill to 3'), A-6, Lab No. 5861SL							
SS-2	X	100	4-4-5	5	845		2.25			14.0			
SS-3	X	100	3-4-5				4.5			10.4			
						LOAM, medium stiff to very stiff, moist, brown and gray, A-4(2), Lab No. 5866SL							
SS-4	X	100	5-7-9	10	840		3.0			10.6	22	13	9
						End of Boring at 10 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		8	

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

GENERAL NOTES

Start 10/28/03 End 10/28/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-35
Elevation 861.0
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Rainy 50° F	Driller	E.D.
Des. No.	0300444	Station	7+00	Offset	4 ft Rt. "S-3-A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
						ASPHALTIC CONCRETE, (9 in.)							
					860	**GRANULAR SUBBASE**, (sand and gravel)							
SS-1	X	100	3-4-5			**CLAY LOAM**, medium stiff, moist, dark gray, with trace organic matter, A-6, Lab No. 5864SL (fill) SS-1 LOI = 4.7%	2.0			23.2			
SS-2	X	0	3-4-6			**CLAY LOAM**, medium stiff to stiff, moist, dark gray to brown and gray below 6', A-7-6, Lab No. 5865SL	---			---			
				5									
					855								
SS-3	X	85	3-5-7				1.5			21.6			
						End of Boring at 7.5 ft							
						Pushed a stone from 3.5' to 5'							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/28/03 End 10/28/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

LOG OF TEST BORING

Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.

EARTH EXPLORATION, INC.
7770 West New York Street - Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

Boring No. RB-36
Elevation 860.5
Datum USC & GS
EEI Proj. No. 1-03-344
Sheet 1 of 1

Proj. No.	STP-9930(029)	Struct. No.	---	Weather	Rainy 50° F	Driller	E.D.
Des. No.	0300444	Station	12+00	Offset	5 ft Lt. "S-4-A"	Inspector	---

SAMPLE No.	Type	Rec %	Blow Counts	Depth ft	Elev	DESCRIPTION/CLASSIFICATION and REMARKS	q_p tsf	q_u tsf	γ_d pcf	W %	LL %	PL %	PI %
					860	**ASPHALTIC CONCRETE** (8 in.)							
						GRANULAR SUBBASE (sand and gravel)							
SS-1	X	85	5-4-4			**CLAY LOAM**, medium stiff, moist, brown and gray, (possible fill), A-7-6, Lab No. 5865SL	2.0			23.7			
SS-2	X	100	2-3-4	5	855		0.5			26.2			
SS-3	X	100	3-3-4			**CLAY LOAM**, medium stiff, moist, brown and gray, with trace organic matter below 7', A-6, Lab No. 5864SL SS-3 LOI = 5.7%	1.0			37.2			
						End of Boring at 7.5 ft							

WATER LEVEL OBSERVATIONS

Depth ft	▽ While Drilling	▼ Upon Completion	▽ After Drilling
To Water	NW	NW	BF
To Cave-in		6	

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

GENERAL NOTES

Start 10/28/03 End 10/28/03 Rig CME 75
Drilling Method 3¼" I.D. HSA Truck
Remarks: Backfilled with auger cuttings, bentonite chips and concrete patch at surface.

EARTH EXPLORATION, Inc.

SUMMARY OF SOUNDINGS

Project: CR 600W, US-52 to CR 200 N
Location: Hancock County, Indiana
Project No.: STP-9930(029)
Client: USI Consultants
EEI Project No.: 1-03-344
Date: 12-08-01
Method: Hand Auger

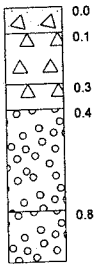
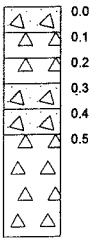
Sounding No.	Station	Offset	Approx. Ground Surface Elevation	Description - All Classifications are visual Depth Interval (ft)	
S-1	55+20	22' Lt. "A"	823.0	in ditch 0 – 1.0 1.0 – 2.0	below 4" standing water Silt, Sand, and Gravel, loose Clay Loam, medium stiff, dark gray
S-2	57+00	24' Rt. "A"	823.0	in ditch 0 – 1.0 1.0 – 2.0	below 6" standing water Silt and Sand, loose Silty Clay Loam, dark gray to brown
S-3	59+00	25' Rt. "A"	824.0	in ditch 0 – 1.2 1.2 – 2.0	below 4" standing water Silt and Sand, loose Sandy Clay Loam, soft, brown
S-4	61+00	16' Lt. "A"	831.0	0 – 0.4 0.4 – 2.0	Grass, topsoil Sandy Clay Loam, soft, brown
S-5	67+00	17' Lt. "A"	833.0	0 – 0.4 0.4 – 2.0	Grass, topsoil Clay Loam, medium stiff, brown and gray
S-6	145+00	14' Rt. "A"	841.0	0 – 0.2 0.2 – 2.0	Grass, topsoil Clay Loam, medium stiff, brown and gray
S-7	149+00	16' Rt. "A"	842.0	0 – 0.3 0.3 – 2.0	Grass, topsoil Clay Loam, medium stiff, brown and gray
S-8	165+00	20' Rt. "A"	845.0	0 – 0.3 0.3 – 2.0	Grass, topsoil Sandy Clay Loam, medium stiff, brown
S-9	173+00	18' Rt. "A"	848.0	0 – 0.2 0.2 – 2.5 2.5 – 3.0	Grass, topsoil Clay Loam, soft to medium stiff, brown and gray Clay Loam, medium stiff, brown and gray
S-10	177+00	18' Rt. "A"	849.0	0 – 0.2 0.2 – 1.0 1.0 – 2.5	Grass, topsoil Clay Loam, soft, dark brown Clay Loam, medium stiff, brown
S-11	187+00	15' Rt. "A"	848.0	0 – 0.2 0.2 – 2.5	Grass, topsoil Clay Loam, medium stiff, brown
S-12	199+00	15' Rt. "A"	850.0	0 – 0.2 0.2 – 1.0 1.0 – 2.5	Grass, topsoil Clay Loam, soft, dark brown Clay Loam, medium stiff, brown
S-13	212+50	28' Rt. "A"	848.0	0 – 0.2 0.2 – 3.0 3.0 – 4.0	Grass, topsoil Clay Loam, soft, dark brown Clay Loam, medium stiff, brown
S-14	8+00	CL "S-2-A"	842.0	0 – 0.7 0.7 – 2.0	Topsoil (agricultural field) Clay Loam, medium stiff, brown

Note: Elevations were approximated to the nearest foot based on the provided plans.

EARTH EXPLORATION Inc

SUMMARY OF PAVEMENT CORES

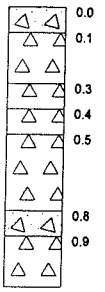
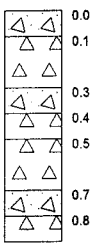
Project No.: STP-9930(029)
Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
EEI Project No.: 1-03-344

Core Designation	Station	Depth (in.)	Core Description	Sketch
PC-1	217+00	0 – 1.75"	12.5 mm Surface Course, slag and limestone aggregate, slightly voided	
		1.75 – 3"	19 mm Intermediate Course, limestone aggregates, voided and weathered	
		3 – 4.75"	19 mm Intermediate Course, limestone aggregates, highly voided, weathered	
		4.75 – 9"	25 mm Base Course, limestone and gravel aggregates, slightly voided	
		9 – 12"	5 mm Base Course, crushed gravel aggregates Subbase: loam	
PC-2	230+00	0 – 1.3"	9.5 mm Surface Course, slag aggregates, voided and weathered	
		1.3 – 2.75"	12.5 mm Intermediate Course, limestone aggregates, voided and segregated	
		2.75 – 3.9 "	2.5 mm Intermediate Course, limestone aggregates, voided and segregated	
		3.9 – 4.5"	9.5 mm Surface Course, crushed gravel aggregates, voided and weathered	
		4.5 – 6.5"	12.5 mm Surface Course, crushed gravel aggregates, weathered	
		6.5 – 11"	19 mm Intermediate Course, crushed gravel aggregates, voided and weathered, separated at 8.5" Subbase: sand and gravel	

EARTH EXPLORATION, Inc.

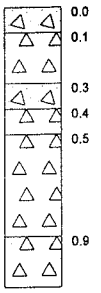
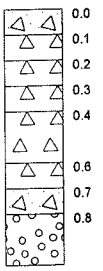
SUMMARY OF PAVEMENT CORES

Project No.: STP-9930(029)
Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
EEI Project No.: 1-03-344

Core Designation	Station	Depth (in.)	Core Description	Sketch
PC-3	243+00	0 – 1.25"	9.5 mm Surface Course, slag aggregates, slightly voided, weathered	
		1.25 – 3.5"	12.5 mm Intermediate Course, limestone aggregates, weathered, separated from overlying course	
		3.5 – 4.25"	12.5 mm Intermediate Course, limestone aggregates, voided, (possible wedge and level)	
		4.25 – 6.5"	12.5 mm Intermediate Course, crushed gravel aggregates, voided and weathered	
		6.5 – 9.75"	12.5 mm Intermediate Course, crushed gravel aggregates, segregated and weathered with some bituminous bleeding	
		9.75 – 11.5"	9.5 mm Surface Course, crushed gravel aggregates, weathered	
		11.5 – 13.5"	9.5 mm Intermediate Course, crushed gravel aggregates, highly weathered and deteriorated	
			Subbase: sand and gravel	
PC-4	256+00	0 – 1"	9.5 mm Surface Course, slag aggregates, voided	
		1 – 3.4"	12.5 mm Intermediate Course, limestone aggregates, voided and segregated	
		3.4 – 4.25"	9.5 mm Surface Course, crushed gravel aggregates, voided	
		4.25 – 5.75"	12.5 mm Intermediate Course, crushed gravel aggregates, segregated	
		5.75 – 8"	12.5 mm Intermediate Course, crushed gravel aggregates, voided, segregated with some bituminous bleeding, separated from overlying course	
		8 – 9"	9.5 mm Surface Course, crushed gravel aggregates, weathered	
		9 – 11.5"	19 mm Intermediate Course, crushed gravel aggregates, highly segregated and weathered	
			Subbase: sand and gravel	

SUMMARY OF PAVEMENT CORES

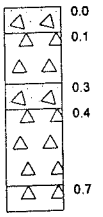
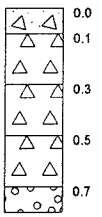
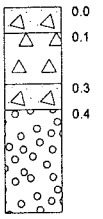
Project No.: STP-9930(029)
Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
EEI Project No.: 1-03-344

Core Designation	Station	Depth (in.)	Core Description	Sketch
PC-5	269+00	0 – 1"	9.5 mm Surface Course, slag aggregates, voided and weathered	
		1 – 3"	12.5 mm Intermediate Course, limestone aggregates, voided and weathered, separation at 2.9"	
		3 – 4.5"	12.5 mm Surface Course, crushed gravel aggregates, voided and weathered	
		4.5 – 6.5"	19 mm Intermediate Course, crushed gravel aggregates, weathered	
		6.5 – 10.2"	12.5 mm Intermediate Course, crushed gravel aggregates, highly voided and uncompacted with some bituminous bleeding, separated from overlying course	
		10.2 – 13"	19 mm Intermediate Course, crushed gravel aggregates, weathered, with some bituminous bleeding	
			Subbase: sand and gravel	
PC-6	282+00	0 -0.9"	9.5 mm Surface Course, slag aggregates, weathered	
		0.9 – 2.5"	12.5 mm Intermediate Course, limestone aggregates, voided and weathered	
		2.5 – 4"	12.5 mm Intermediate Course, crushed gravel aggregates, weathered	
		4 – 5.3"	12.5 mm Intermediate Course, crushed gravel aggregates, weathered	
		5.3 – 6.75"	12.5 mm Intermediate Course, crushed gravel aggregates, weathered	
		6.75 – 8.3"	12.5 mm Intermediate Course, crushed gravel aggregates, voided and weathered, separated from overlying course	
		8.3 – 9.6"	9.5 mm Surface Course, crushed gravel aggregates, weathered	
		9.6 – 12"	19 mm Base Course, crushed gravel aggregates, weathered	
			Subbase: sand and gravel	

EARTH EXPLORATION, Inc.

SUMMARY OF PAVEMENT CORES

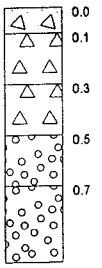
Project No.: STP-9930(029)
Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
EEI Project No.: 1-03-344

Core Designation	Station	Depth (in.)	Core Description	Sketch
PC-7	295+00	0 – 1.3"	9.5 mm Surface Course, slag aggregates, weathered	
		1.3 – 3.5"	12.5 mm Intermediate Course, limestone aggregates, weathered, vertically fractured	
		3.5 – 4.5"	9.5 mm Surface Course, crushed gravel aggregates, weathered, vertically fractured	
		4.5 – 8"	19 mm Intermediate Course, crushed gravel aggregates, weathered, vertically fractured	
		8 – 10"	12.5 mm Intermediate Course, crushed gravel aggregates, deteriorated, vertically fractured	
			Subbase: sand and gravel	
PC -8	308+00	0 – 1.2"	9.5 mm Surface Course, slag aggregates, weathered	
		1.2 – 3.6"	12.5 mm Intermediate Course, limestone aggregates	
		3.6 – 5.5"	12.5 mm Intermediate Course, crushed gravel aggregates	
		5.5 – 8.5"	12.5 mm Intermediate Course, crushed gravel aggregates	
		8.5 – 10"	19 mm Base Course, crushed gravel aggregates, weathered	
			Subbase: sand and gravel	
PC-9	321+00	0 – 1"	9.5 mm Surface Course, slag aggregates, weathered	
		1 – 3.75"	12.5 mm Intermediate Course, limestone aggregates, fractured and separated at 3"	
		3.75 – 5.2"	12.5 mm Surface Course, crushed gravel aggregates, voided and weathered	
		5.2 – 9"	25 mm Base Course, crushed gravel aggregates, voided and weathered,	
			Subbase: sand and gravel	

EARTH EXPLORATION

SUMMARY OF PAVEMENT CORES

Project No.: STP-9930(029)
Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
EEI Project No.: 1-03-344

Core Designation	Station	Depth (in.)	Core Description	Sketch
PC-10	333+00	0 – 1.2"	9.5 mm Surface Course, limestone aggregates, voided	
		1.2 – 3.5"	19 mm Intermediate Course, limestone aggregates, voided	
		3.5 – 6"	19 mm Intermediate Course, limestone aggregates, highly voided	
		6 – 8"	25 mm Base Course, limestone aggregates, highly voided	
		8 – 11.5"	25 mm Base Course, limestone aggregates, segregated and voided, Subbase: crushed stone	

APPENDIX D

SUMMARY OF SPECIAL LABORATORY TEST RESULTS

SUMMARY OF CLASSIFICATION TEST RESULTS

GRAIN SIZE DISTRIBUTION CURVE (7)

UNCONFINED COMPRESSION TEST (3)

MOISTURE DENSITY RELATIONS (2)

SUMMARY OF CBR TEST RESULTS (2)

CALIFORNIA BEARING RATIO (2)

RESILIENT MODULUS OF SUBGRADE SOILS (performed by others)

SUMMARY OF SPECIAL LABORATORY TEST RESULTS

Project No.: STP-9930(029)
Des. No.: 0300444
Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
EEI Project No.: 1-03-344

Laboratory Number	Test Boring No.	Sample Number	Sample Depth Interval, ft	Moisture Content, %	pH	LOI
5861SL	RB-1	SS-1	1.0-2.5	19.2	7.5	
5871SL	RB-1	SS-3	6.0-7.5	12.1		
5871SL	RB-2	SS-1	1.0-2.5	13.3		
5871SL	RB-2	SS-2	3.5-5.0	25.3		
5871SL	RB-2	SS-3	6.0-7.5	10.8		
5871SL	RB-3	SS-1	1.0-2.5	17.8		
5871SL	RB-3	SS-2	3.5-5.0	7.6		
5871SL	RB-3	SS-3	6.0-7.5	14.8		
5871SL	RB-3	SS-4	8.5-10.0	11.4		
5871SL	RB-4	SS-1	1.0-2.5	21.3		
5871SL	RB-4	SS-2	3.5-5.0	13.5		
5871SL	RB-4	SS-3	6.0-7.5	29.8		
5871SL	RB-5	SS-1	1.0-2.5	15.9		
5871SL	RB-5	SS-2	3.5-5.0	21.1		
5871SL	RB-5	SS-3	6.0-7.5	11.9		
5871SL	RB-6	SS-1	1.0-2.5	19.7		
5871SL	RB-6	SS-2	3.5-5.0	21.3		
5871SL	RB-6	SS-3	6.0-7.5	9.9		
5871SL	RB-7	SS-1	1.0-2.5	21.0		5.1
5871SL	RB-7	SS-2	3.5-5.0	23.8		
5871SL	RB-7	SS-3	6.0-7.5	12.2		
5871SL	RB-7	SS-4	8.5-10.0	11.4		
5862SL	RB-8	SS-1	1.0-2.5	11.3	7.6	
5871SL	RB-8	SS-2	3.5-5.0	12.5		
5871SL	RB-8	SS-3	6.0-7.5	11.9		
5863SL	RB-9	SS-1	1.0-2.5	14.4	7.3	
5871SL	RB-9	SS-2	3.5-5.0	22.5		
5871SL	RB-9	SS-3	6.0-7.5	16.5		
5871SL	RB-10	SS-1	1.0-2.5	8.5		
5871SL	RB-10	SS-2	3.5-5.0	14.0		
5871SL	RB-10	SS-3	6.0-7.5	20.7		
5871SL	RB-10	SS-4	8.5-10.0	13.3		
5871SL	RB-11	SS-1	1.0-2.5	19.1		
5871SL	RB-11	SS-2	3.5-5.0	24.7		
5871SL	RB-11	SS-3	6.0-7.5	13.9		
5871SL	RB-11	SS-4	8.5-10.0	10.2		
5871SL	RB-12	SS-1	1.0-2.5	19.5		

SUMMARY OF SPECIAL LABORATORY TEST RESULTS

Project No.: STP-9930(029)
Des. No.: 0300444
Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
EEI Project No.: 1-03-344

Laboratory Number	Test Boring No.	Sample Number	Sample Depth Interval, ft	Moisture Content, %	pH	LOI
5871SL	RB-12	SS-2	3.5-5.0	12.2		
5871SL	RB-12	SS-3	6.0-7.5	13.1		
5871SL	RB-12	SS-4	8.5-10.0	9.4		
5871SL	RB-13	SS-1	1.0-2.5	24.9		5.2
5871SL	RB-13	SS-2	3.5-5.0	21.4		
5871SL	RB-13	SS-3	6.0-7.5	19.2		
5871SL	RB-14	SS-1	1.0-2.5	24.8		
5871SL	RB-14	SS-2	3.5-5.0	13.6		
5871SL	RB-14	SS-3	6.0-7.5	12.3		
5871SL	RB-15	SS-1	1.0-2.5	22.9		
5871SL	RB-15	SS-2	3.5-5.0	24.1		
5871SL	RB-15	SS-3	6.0-7.5	12.2		
5871SL	RB-16	SS-1	1.0-2.5	18.5		5.1
5871SL	RB-16	SS-2	3.5-5.0	21.3		
5871SL	RB-16	SS-3	6.0-7.5	11.4		
5864SL	RB-16A	BS-1	1.0-3.0		7.5	
5871SL	RB-17	SS-1	1.0-2.5	11.7		
5871SL	RB-17	SS-2	3.5-5.0	11.5		
5871SL	RB-17	SS-3	6.0-7.5	13.3		
5871SL	RB-18	SS-1	1.0-2.5	20.5		
5871SL	RB-18	SS-2	3.5-5.0	24.2		
5871SL	RB-18	SS-3	6.-7.5	11.2		
5871SL	RB-19	SS-1	1.0-2.5	20.1		
5871SL	RB-19	SS-2	3.5-5.0	10.6		
5871SL	RB-19	SS-3	6.0-7.5	12.6		
5871SL	RB-20	SS-1	1.0-2.5	23.7		7.4
5871SL	RB-20	SS-2	3.5-5.0	23.1		
5871SL	RB-20	SS-3	6.0-7.5	12.9		
5871SL	RB-21	SS-1	1.0-2.5	17.2		
5871SL	RB-21	SS-2	3.5-5.0	10.8		
5871SL	RB-21	SS-3	6.0-7.5	10.6		
5871SL	RB-22	SS-1	1.0-2.5	26.1		5.2
5871SL	RB-22	SS-2	3.5-5.0	25.4		
5871SL	RB-22	SS-3	6.0-7.5	21.0		
5871SL	RB-23	SS-1	1.0-2.5	16.2		
5871SL	RB-23	SS-2	3.5-5.0	11.6		
5871SL	RB-23	SS-3	6.0-7.5	12.2		

SUMMARY OF SPECIAL LABORATORY TEST RESULTS

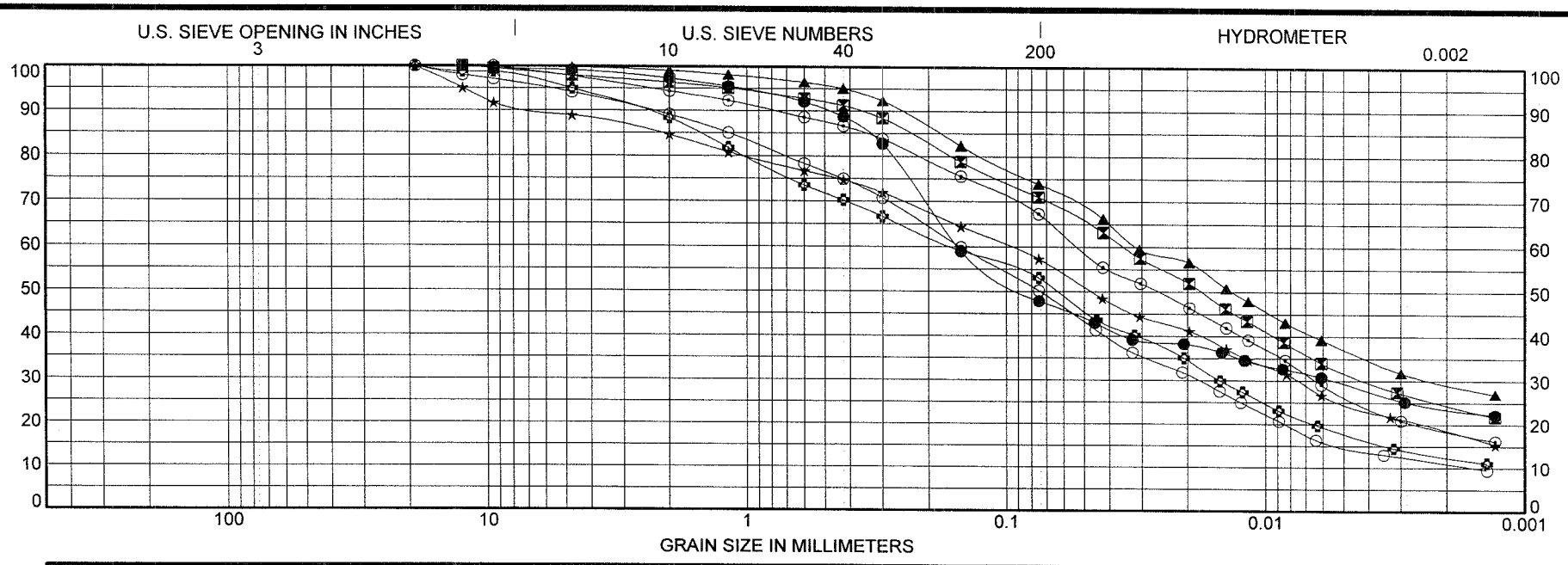
Project No.: STP-9930(029)
Des. No.: 0300444
Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
EEI Project No.: 1-03-344

Laboratory Number	Test Boring No.	Sample Number	Sample Depth Interval, ft	Moisture Content, %	pH	LOI
5871SL	RB-24	SS-1	1.0-2.5	25.8		
5871SL	RB-24	SS-2	3.5-5.0	14.4		
5871SL	RB-24	SS-3	6.0-7.5	12.0		
5871SL	RB-25	SS-1	1.0-2.5	25.1		
5871SL	RB-25	SS-2	3.5-5.0	28.6		
5871SL	RB-25	SS-3	6.0-7.5	13.1		
5865SL	RB-25A	BS-1	1.0-2.5		8.0	
5871SL	RB-26	SS-1	1.0-2.5	23.1		
5871SL	RB-26	SS-2	3.5-5.0	20.6		
5871SL	RB-26	SS-3	6.0-7.5	15.9		
5871SL	RB-27	SS-1	1.0-2.5	20.7		
5871SL	RB-27	SS-2	3.5-5.0	25.9		
5871SL	RB-27	SS-3	6.0-7.5	11.9		
5871SL	RB-28	SS-1	1.0-2.5	22.7		
5871SL	RB-28	SS-2	3.5-5.0	13.1		
5871SL	RB-28	SS-3	6.0-7.5	11.9		
5871SL	RB-29	SS-1	1.0-2.5	21.9		
5871SL	RB-29	SS-2	3.5-5.0	20.4		
5871SL	RB-29	SS-3	6.0-7.5	17.6		
5871SL	RB-30	SS-1	1.0-2.5	25.4		
5871SL	RB-30	SS-2	3.5-5.0	11.5		
5871SL	RB-30	SS-3	6.0-7.5	10.5		
5871SL	RB-31	SS-1	1.0-2.5	21.0		
5871SL	RB-31	SS-2	3.5-5.0	23.0		
5871SL	RB-31	SS-3	6.0-7.5	25.5		
5871SL	RB-32	SS-1	1.0-2.5	22.0		
5871SL	RB-32	SS-2	3.5-5.0	19.6		
5871SL	RB-32	SS-3	6.0-7.5	22.0		
5871SL	RB-33	SS-1	1.0-2.5	22.6		
5871SL	RB-34	SS-2	3.5-5.0	14.0		
5871SL	RB-34	SS-3	6.0-7.5	10.4		
5866SL	RB-34	SS-4	8.5-10.0	10.6	7.9	
5871SL	RB-35	SS-1	1.0-2.5	23.2		4.7
5871SL	RB-35	SS-3	6.0-7.5	21.6		
5871SL	RB-36	SS-1	1.0-2.5	23.7		
5871SL	RB-36	SS-2	3.5-5.0	26.2		
5871SL	RB-36	SS-3	6.0-7.5	37.2		5.7

SUMMARY OF SPECIAL LABORATORY TEST RESULTS

Project No.: STP-9930(029)
Des. No.: 0300444
Project: CR 600 W, US 52 to CR 200 N
Location: Hancock County, Indiana
Client: USI Consultants, Inc.
EEI Project No.: 1-03-344

Laboratory Number	Test Boring No.	Sample Number	Sample Depth Interval, ft	Moisture Content, %	pH	LOI
5871SL	TB-1	SS-2	3.5-5.0	13.8		
5871SL	TB-1	SS-4	8.5-10.0	10.0		
5871SL	TB-1	SS-5	11.0-12.5	8.8		
5871SL	TB-1	SS-6	13.5-15.0	10.1		
5871SL	TB-1	SS-7	16.0-17.5	10.0		
5871SL	TB-2	SS-1	1.0-2.5	19.6		
5871SL	TB-2	SS-2	3.5-5.0	23.2		
5871SL	TB-2	SS-3	6.0-7.5	12.7		
5871SL	TB-2	SS-4	8.5-10.0	10.1		
5871SL	TB-2	SS-5	11.0-12.5	8.7		
5871SL	TB-2	SS-6	13.5-15.0	9.9		
5871SL	TB-2	SS-7	16.0-17.5	9.6		
5871SL	TB-2	SS-8	18.5-20.0	14.3		
5871SL	TB-3	SS-1	1.0-2.5	19.4		4.3
5871SL	TB-3	SS-2	3.5-5.0	20.3		
5871SL	TB-3	SS-3	6.0-7.5	10.6		
5871SL	TB-3	SS-4	8.5-10.0	20.3		
5871SL	TB-3	SS-5	11.0-12.5	11.9		
5871SL	TB-3	SS-6	13.5-15.0	11.3		
5871SL	TB-4	SS-1	1.0-2.5	25.1		
5871SL	TB-4	SS-2	3.5-5.0	31.9		
5867SL	TB-4	SS-3	6.0-7.5	11.0		
5871SL	TB-4	SS-4	8.5-10.0	13.1		
5871SL	TB-4	SS-5	11.0-12.5	11.5		
5871SL	TB-4	SS-6	13.5-15.0	8.5		
5871SL	TB-5	SS-1	1.0-2.5	22.8		
5871SL	TB-5	SS-2	3.5-5.0	23.3		
5871SL	TB-5	SS-3	6.0-7.5	12.1		
5871SL	TB-5	SS-4	8.5-10.0	11.3		
5871SL	TB-5	SS-5	11.0-12.5	10.9		
5871SL	TB-5	SS-6	13.5-15.0	10.0		



BOULDERS	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

	Lab No.	Boring	Station/Offset/Line	Sample No.	Depth ft	Classification	% Passing			% Gravel	% Sand	% Silt	% Clay	% Coll.	LL	PL	PI	Opt. Moist.	γ_{max} pcf	* CBR at	
							No.10	No.40	No.200											93%	97%
●	5861SL	RB-1	27+10 10 ft Rt. "A"	SS-1	1.0 - 2.5	SANDY CLAY LOAM A-6 (5)	97.3	88.8	47.9	2.7	49.5	24.1	23.8	22.2	32	13	19				
⊠	5864SL	RB-16A	125+00 25 ft Rt. "A"	BS-1	1.0 - 3.0	CLAY LOAM A-6 (7)	96.4	91.2	71.0	3.6	25.4	46.5	24.5	20.1	30	18	12	17.2	108.1	1.8	3.7
▲	5865SL	RB-25A	188+00 20 ft Rt. "A"	BS-1	1.0 - 2.5	CLAY LOAM A-7-6 (17)	99.1	95.1	73.9	0.9	25.2	44.4	29.5	26.9	41	16	25	17.3	107.2	2.7	4.7
★	5866SL	RB-34	24+15 C.L. "S-3-A"	SS-4	8.5 - 10.0	LOAM A-4 (2)	84.6	74.7	57.3	15.4	27.3	39.0	18.4	13.0	22	13	9				
⊙	5862SL	RB-8	73+00 5 ft Lt. "A"	SS-1	1.0 - 2.5	LOAM A-4 (3)	94.4	86.6	67.3	5.6	27.1	48.6	18.6	15.2	23	14	9				
✿	5863SL	RB-9	80+85 5 ft Rt. "A"	SS-1	1.0 - 2.5	LOAM A-4 (2)	88.4	70.2	53.1	11.6	35.3	40.5	12.6	10.1	26	17	9				
○	5867SL	TB-4	135+40 6 ft Lt. "A"	SS-3	6.0 - 7.5	LOAM A-4 (0)	89.1	75.0	50.2	10.9	38.9	39.4	10.9	7.7	17	15	2				

EARTH EXPLORATION

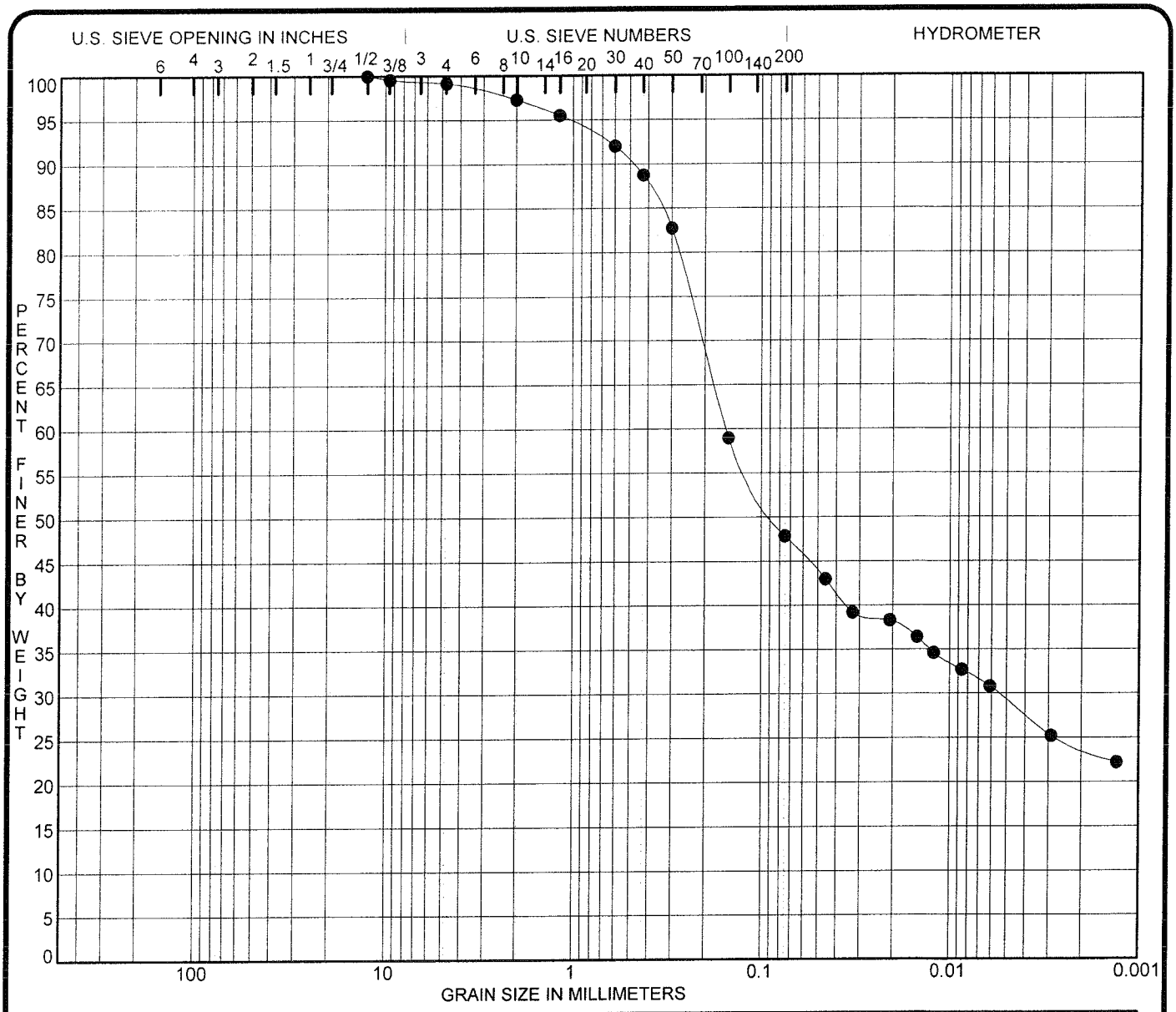
Project No. STP-9930(029)
Structure No. ---
EEI Project No. 1-03-344

Project Location CR 600 W, US 52 to CR 200 N
Hancock County, Indiana
Client USI Consultants, Inc.

SUMMARY OF CLASSIFICATION TEST RESULTS

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

* See text for recommended values.



BOULDERS	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Sample Identification	Station / Offset / Line	Depth, ft.	Elevation, USCGS
● RB-1 SS-1	27+10 10 ft Rt. "A"	1.0 - 2.5 ft.	823.0 - 821.5

Lab No.	Classification	pH	%Gravel	%Sand	%Silt	%Clay	MC%	LL	PL	PI
5861SL	SANDY CLAY LOAM A-6 (5)	7.5	2.7	49.5	24.1	23.8	19.2	32	13	19

Remarks:

EARTH EXPLORATION Inc

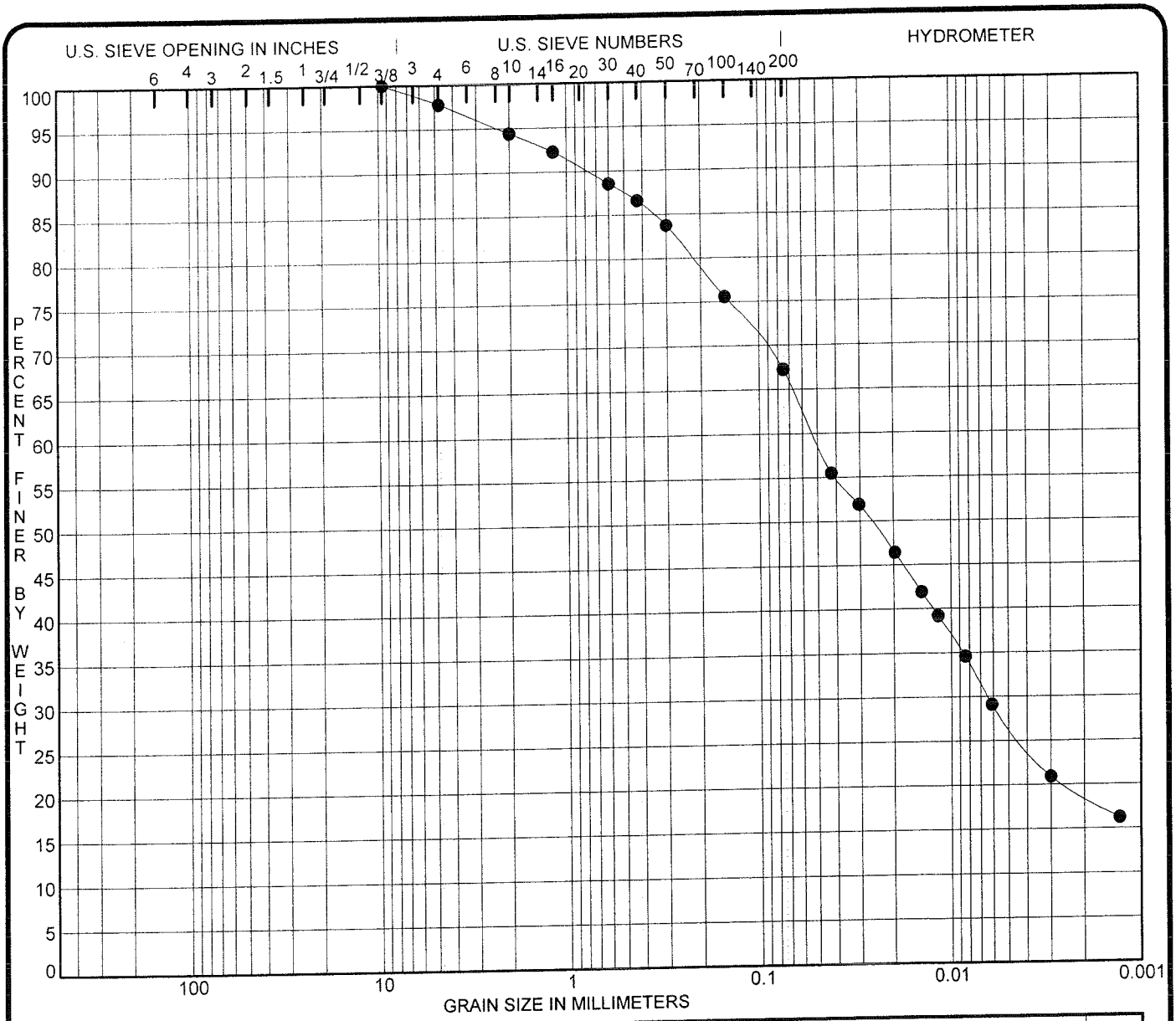
Project No. STP-9930(029) **Project** CR 600 W, US 52 to CR 200 N

Structure No. --- **Location** Hancock County, Indiana

EEI Proj. No. 1-03-344 **Client** USI Consultants, Inc.

GRAIN SIZE DISTRIBUTION CURVE

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)



Sample Identification		Station / Offset / Line	Depth, ft.	Elevation, USCGS
● RB-8	SS-1	73+00 5 ft Lt. "A"	1.0 - 2.5 ft.	838.0 - 836.5

Lab No.	Classification	pH	%Gravel	%Sand	%Silt	%Clay	MC%	LL	PL	PI
5862SL	LOAM A-4 (3)	7.6	5.6	27.1	48.6	18.6	11.3	23	14	9

Remarks:

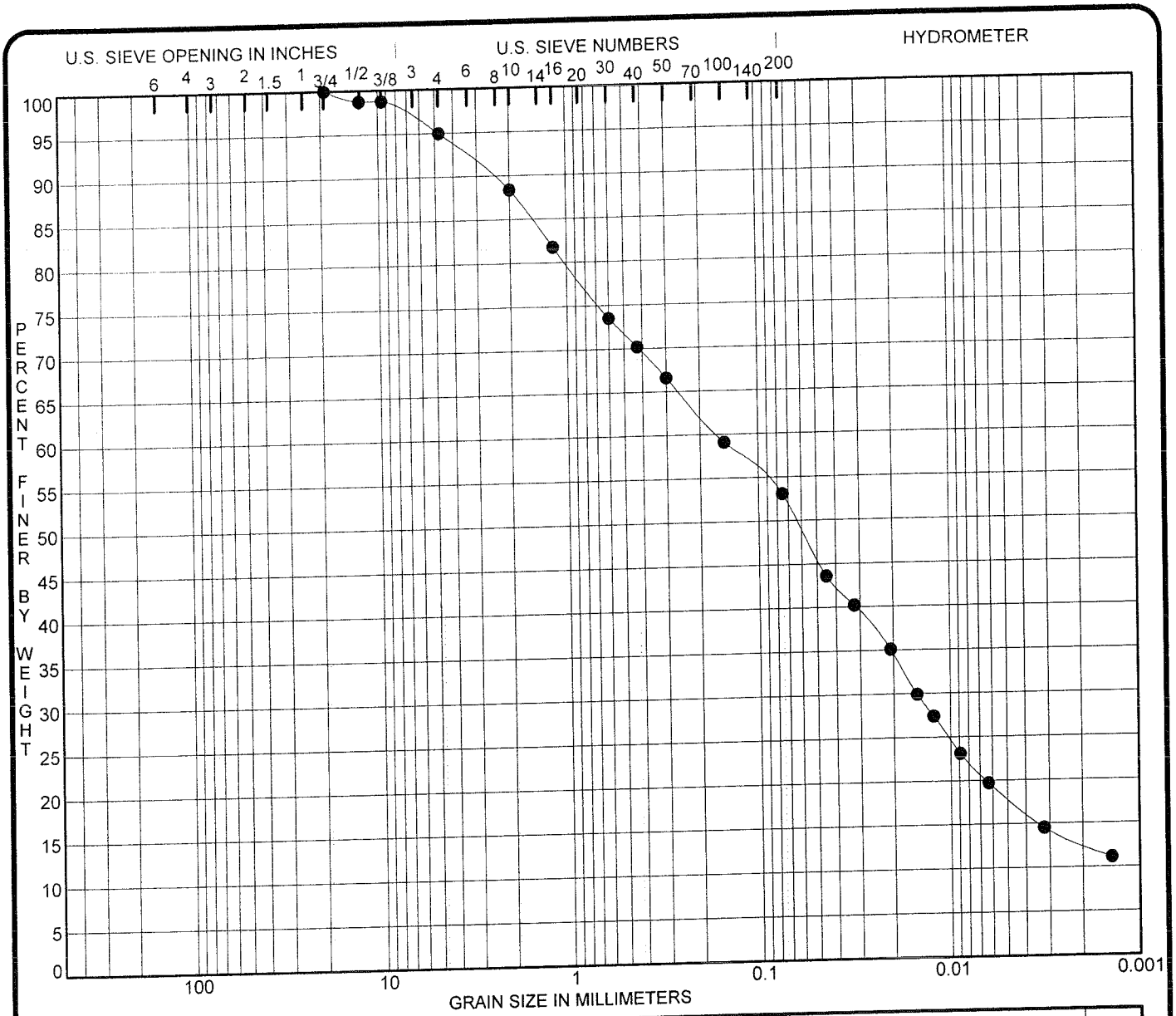
EARTH EXPLORATION, Inc.

Project No. STP-9930(029)
Structure No. ---
EEI Proj. No. 1-03-344

Project CR 600 W, US 52 to CR 200 N
Location Hancock County, Indiana
Client USI Consultants, Inc.

GRAIN SIZE DISTRIBUTION CURVE

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)



Sample Identification		Station / Offset / Line	Depth, ft.	Elevation, USCGS
● RB-9	SS-1	80+85 5 ft Rt. "A"	1.0 - 2.5 ft.	837.0 - 835.5

Lab No.	Classification	pH	%Gravel	%Sand	%Silt	%Clay	MC%	LL	PL	PI
5863SL	LOAM A-4 (2)	7.3	11.6	35.3	40.5	12.6	14.4	26	17	9

Remarks:

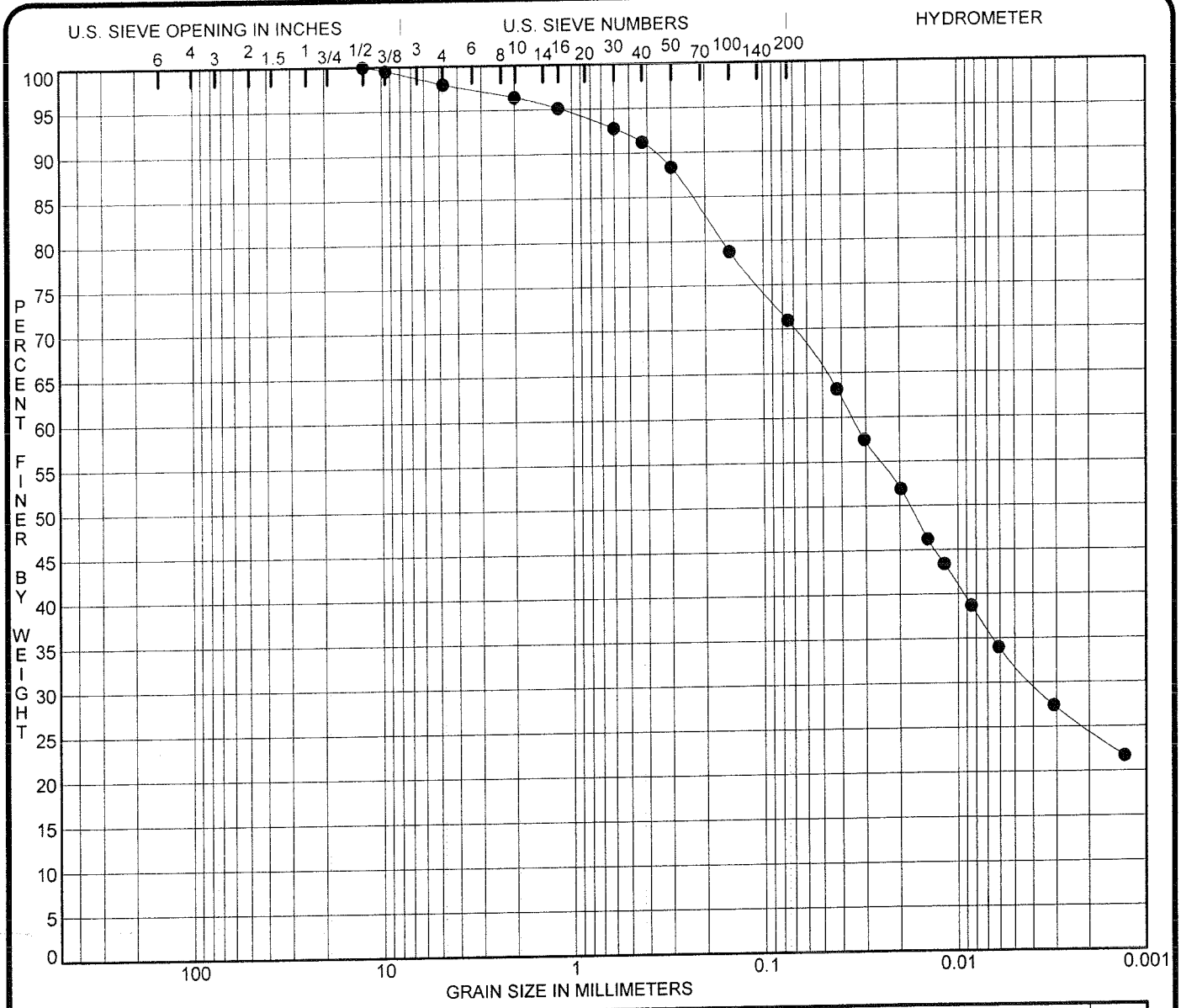
EARTH EXPLORATION INC

Project No. STP-9930(029)
Structure No. ---
EEI Proj. No. 1-03-344

Project CR 600 W, US 52 to CR 200 N
Location Hancock County, Indiana
Client USI Consultants, Inc.

GRAIN SIZE DISTRIBUTION CURVE

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)



BOULDERS	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Sample Identification		Station / Offset / Line	Depth, ft.	Elevation, USCGS
● RB-16A	BS-1	125+00 25 ft Rt. "A"	1.0 - 3.0 ft.	839.0 - 837.0

Lab No.	Classification	pH	%Gravel	%Sand	%Silt	%Clay	MC%	LL	PL	PI
5864SL	CLAY LOAM A-6 (7)	7.5	3.6	25.4	46.5	24.5	---	30	18	12

Remarks:

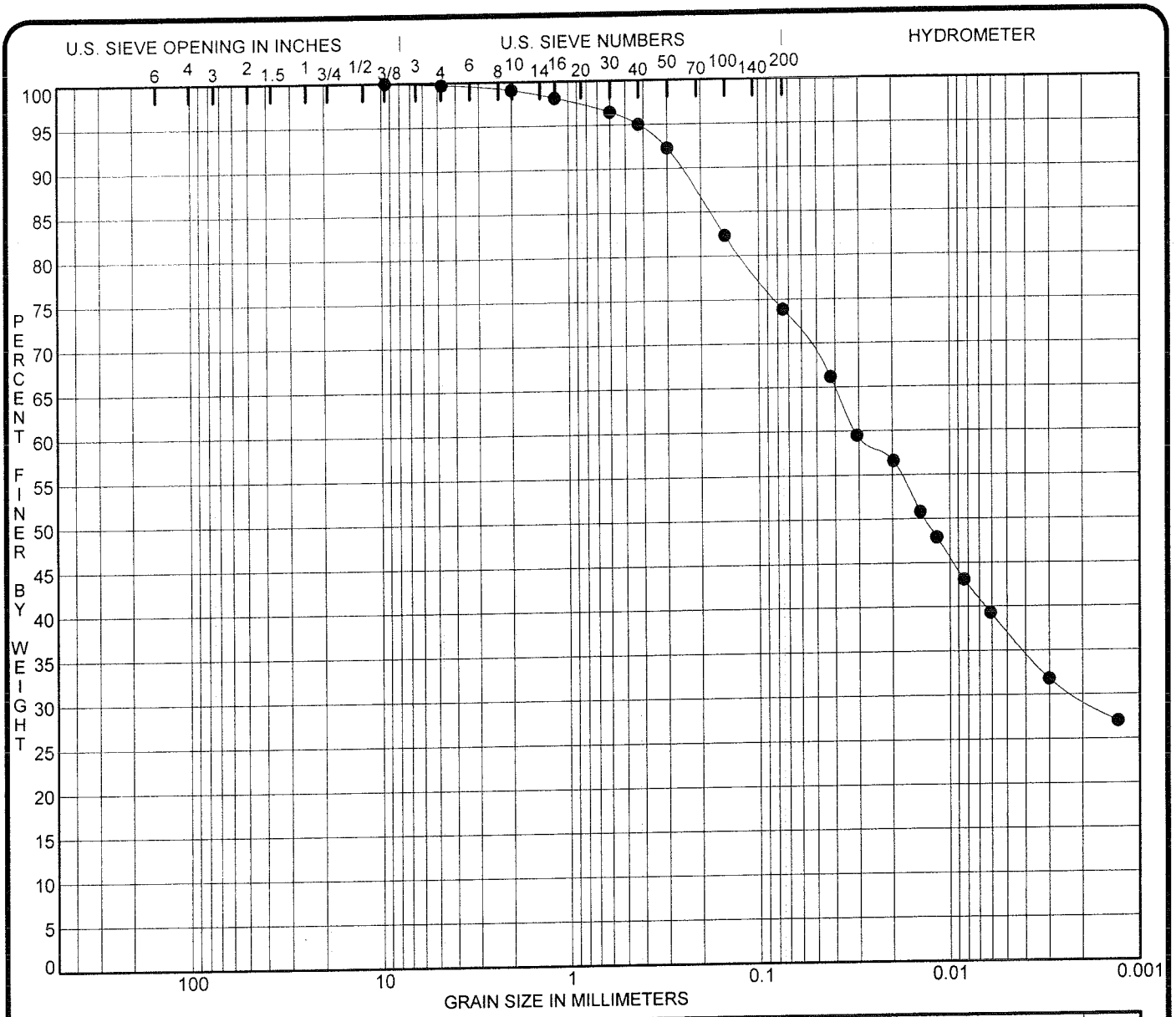
EARTH EXPLORATION, Inc.

Project No. STP-9930(029)
Structure No. ---
EEI Proj. No. 1-03-344

Project CR 600 W, US 52 to CR 200 N
Location Hancock County, Indiana
Client USI Consultants, Inc.

GRAIN SIZE DISTRIBUTION CURVE

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)



BOULDERS	GRAVEL	SAND		SILT	CLAY
		coarse	fine		

Sample Identification	Station / Offset / Line	Depth, ft.	Elevation, USCGS
● RB-25A BS-1	188+00 20 ft Rt. "A"	1.0 - 2.5 ft.	848.0 - 846.5

Lab No.	Classification	pH	%Gravel	%Sand	%Silt	%Clay	MC%	LL	PL	PI
5865SL	CLAY LOAM A-7-6 (17)	8.0	0.9	25.2	44.4	29.5	---	41	16	25

Remarks:

EARTH EXPLORATION Inc

Project No. STP-9930(029)
Structure No. ---
EEI Proj. No. 1-03-344

Project CR 600 W, US 52 to CR 200 N
Location Hancock County, Indiana
Client USI Consultants, Inc.

GRAIN SIZE DISTRIBUTION CURVE

Earth Exploration, Inc.
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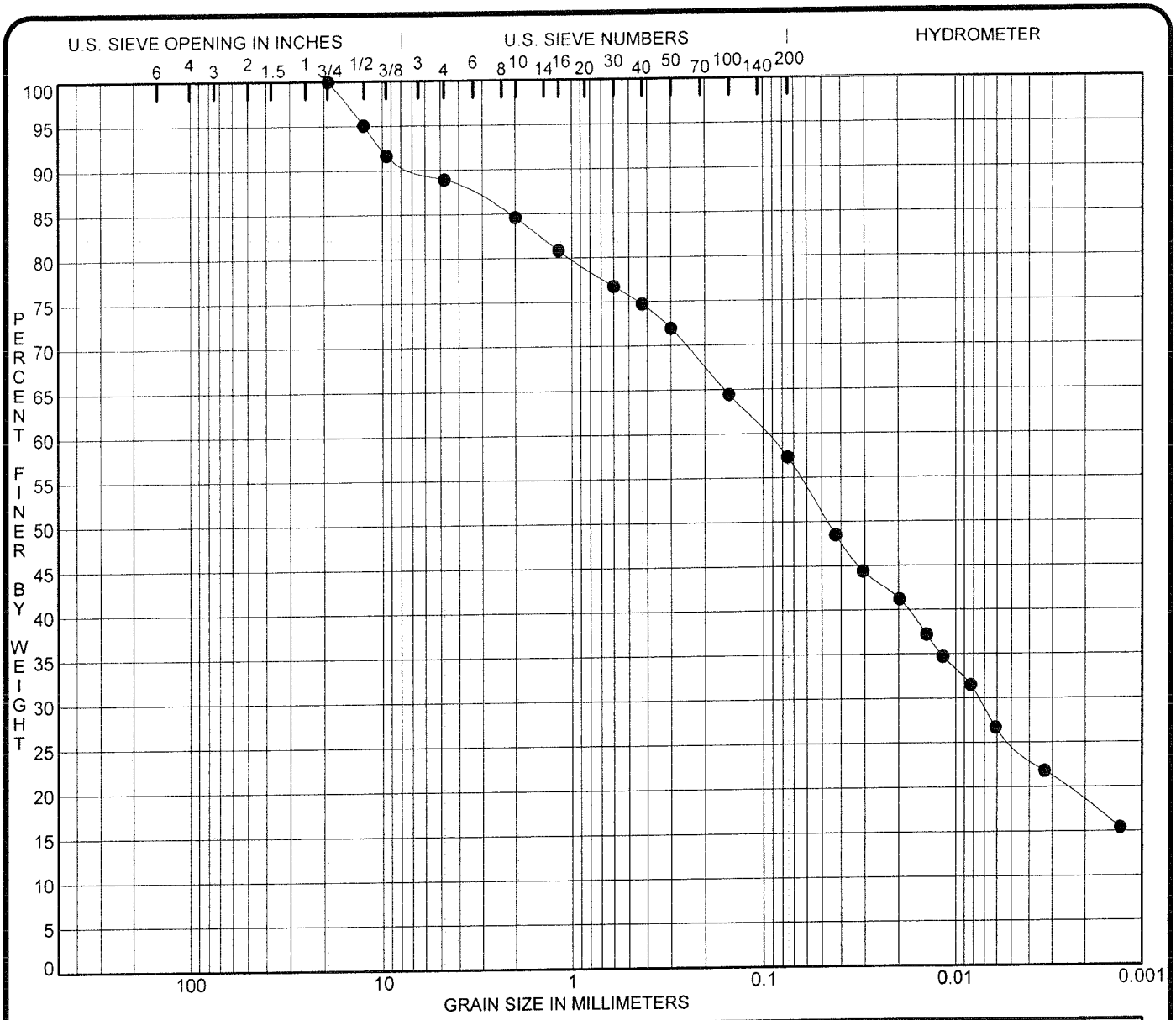


Sample Identification		Station / Offset / Line	Depth, ft.	Elevation, USCGS
● RB-34	SS-4	24+15 CI "S-3-A"	8.5 - 10.0 ft.	841.5 - 840.0

Lab No.	Classification	pH	%Gravel	%Sand	%Silt	%Clay	MC%	LL	PL	PI
5866SL	LOAM A-4 (2)	7.9	15.4	27.3	39.0	18.4	10.6	22	13	9

Remarks:

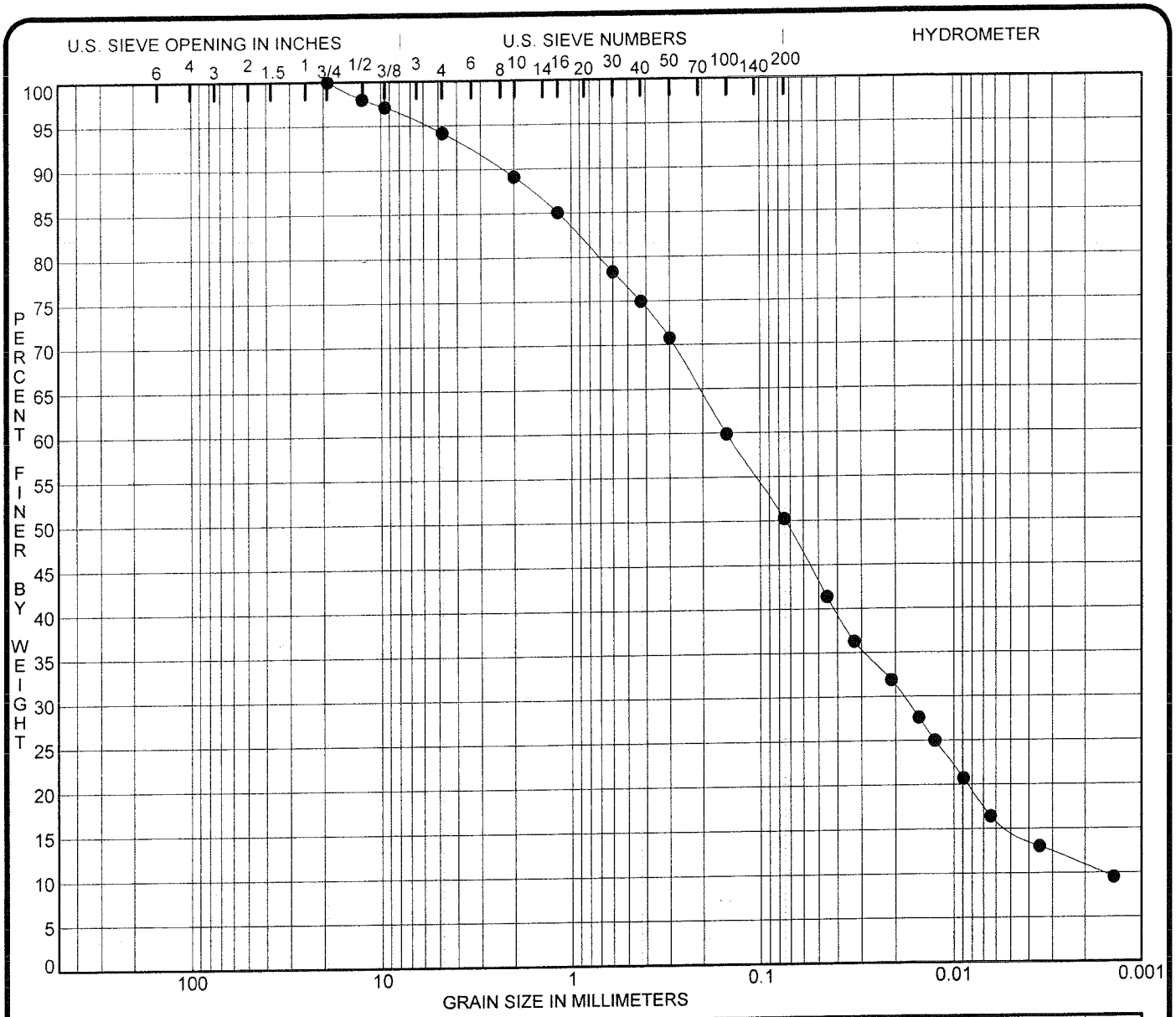
EARTH EXPLORATION Inc

Project No. STP-9930(029)
Structure No. ---
EEI Proj. No. 1-03-344

Project CR 600 W, US 52 to CR 200 N
Location Hancock County, Indiana
Client USI Consultants, Inc.

GRAIN SIZE DISTRIBUTION CURVE

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)



Sample Identification		Station / Offset / Line	Depth, ft.	Elevation, USCGS
● TB-4	SS-3	135+40 6 ft Lt. "A"	6.0 - 7.5 ft.	836.0 - 834.5

Lab No.	Classification	pH	%Gravel	%Sand	%Silt	%Clay	MC%	LL	PL	PI
5867SL	LOAM A-4 (0)	7.6	10.9	38.9	39.4	10.9	11.0	17	15	2

Remarks:

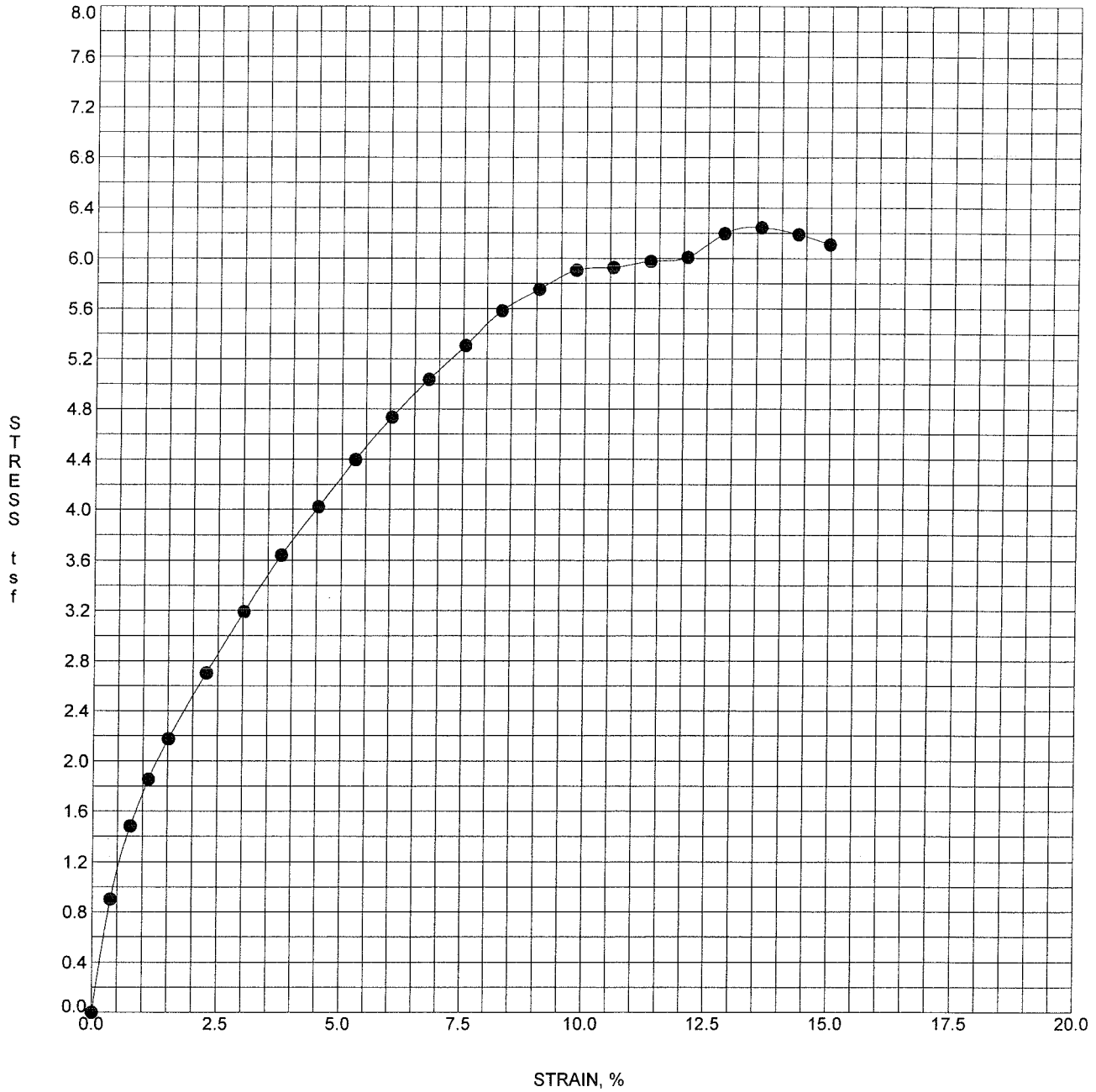
EARTH EXPLORATION Inc

Project No. STP-9930(029)
Structure No. ---
EEI Proj. No. 1-03-344

Project CR 600 W, US 52 to CR 200 N
Location Hancock County, Indiana
Client USI Consultants, Inc.

GRAIN SIZE DISTRIBUTION CURVE

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)



Sample Identification	Station / Offset / Line	Depth, ft	Classification
● TB-1 SS-4	48+90 5 ft Rt. "A"	8.5 - 10.0	LOAM

Lab No.	Sample Ht., mm	Sample Diam., mm	Initial M.C., %	Initial Wet Den, pcf	Initial Dry Den, pcf	Sat., %	Unc. Comp. Strength, tsf	Failure Strain, %	Rate of Strain to Failure, %
5868SL	70.7	34.2	10.0	148.2	134.8	96.5	6.25	13.6	1.5

EARTH EXPLORATION Inc

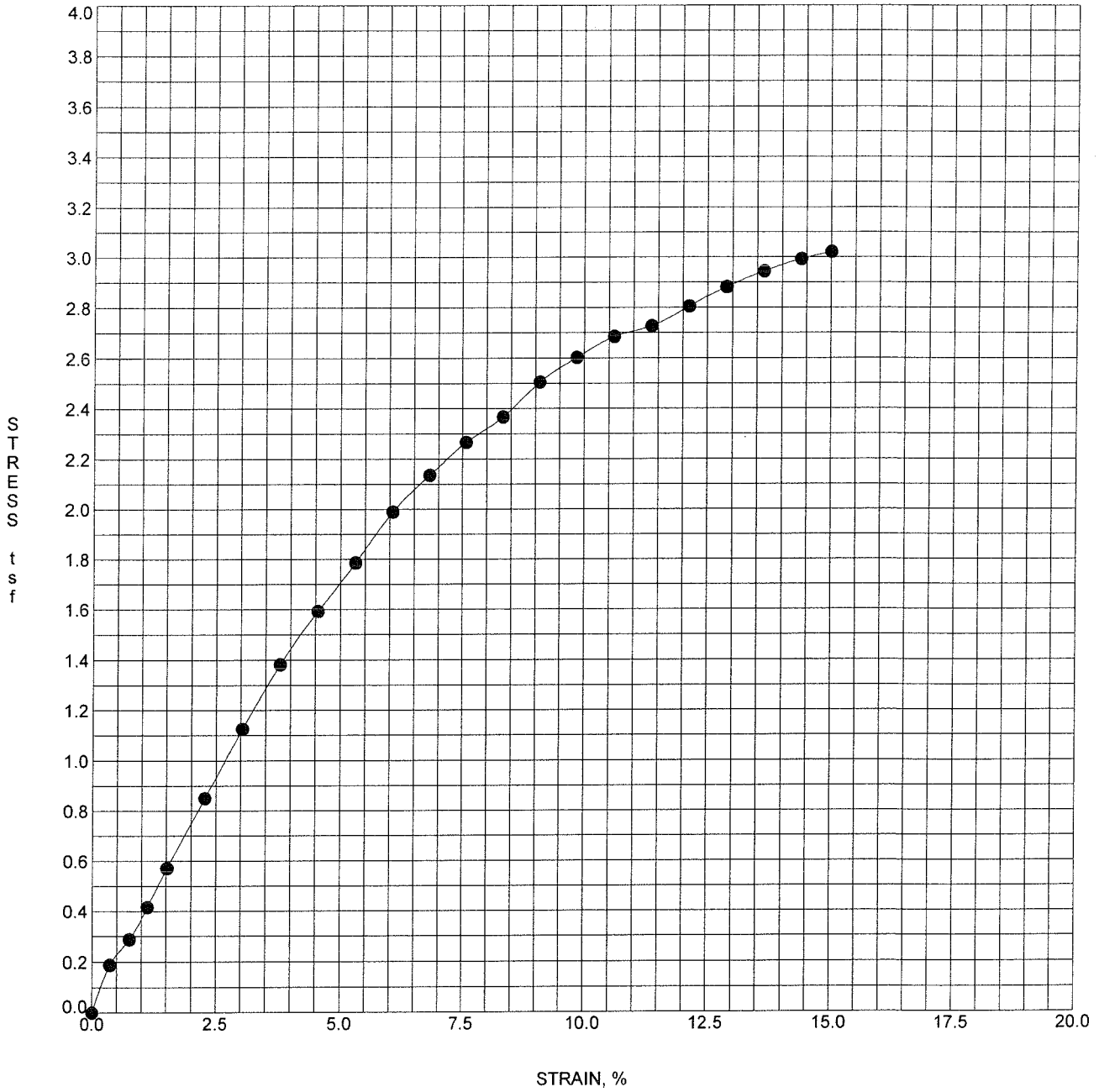
Project No. STP-9930(029) **Project** CR 600 W, US 52 to CR 200 N

Structure No. --- **Location** Hancock County, Indiana

EEI Proj. No. 1-03-344 **Client** USI Consultants, Inc.

UNCONFINED COMPRESSION TEST

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)



Sample Identification	Station / Offset / Line	Depth, ft	Classification
● TB-5 SS-3	139+75 5 ft Lt. "A"	6.0 - 7.5	LOAM

Lab No.	Sample Ht., mm	Sample Diam., mm	Initial M.C., %	Initial Wet Den, pcf	Initial Dry Den, pcf	Sat., %	Unc. Comp. Strength, tsf	Failure Strain, %	Rate of Strain to Failure, %
5870SL	70.4	35.8	12.1	143.8	128.3	95.1	3.02	15.0	1.5

EARTH EXPLORATION Inc

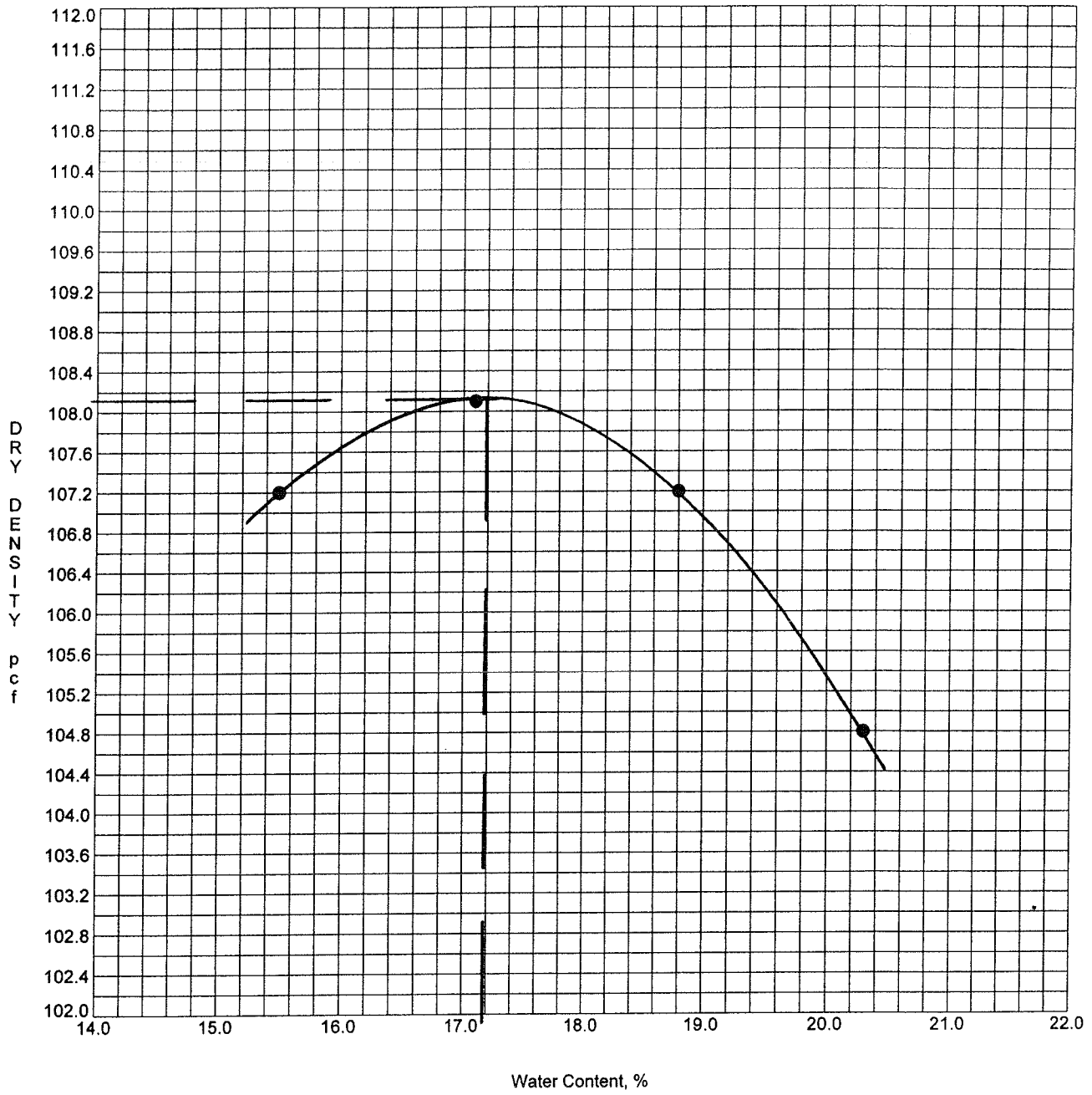
Project No. STP-9930(029) **Project** CR 600 W, US 52 to CR 200 N

Structure No. --- **Location** Hancock County, Indiana

EEI Proj. No. 1-03-344 **Client** USI Consultants, Inc.

UNCONFINED COMPRESSION TEST

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)



Sample Identification	Station / Offset / Line	Depth, ft.	Elevation, USC+GS
● RB-16A BS-1	125+00 25 ft Rt. "A"	1.0 - 3.0	839.0 - 837.0

Lab No.	Classification	As Received M.C., %	Optimum M.C., %	Maximum Dry Den., pcf	Test Method
5864SL	CLAY LOAM A-6 (7)	---	17.2	108.1	AASHTO T 99

EARTH EXPLORATION, Inc.

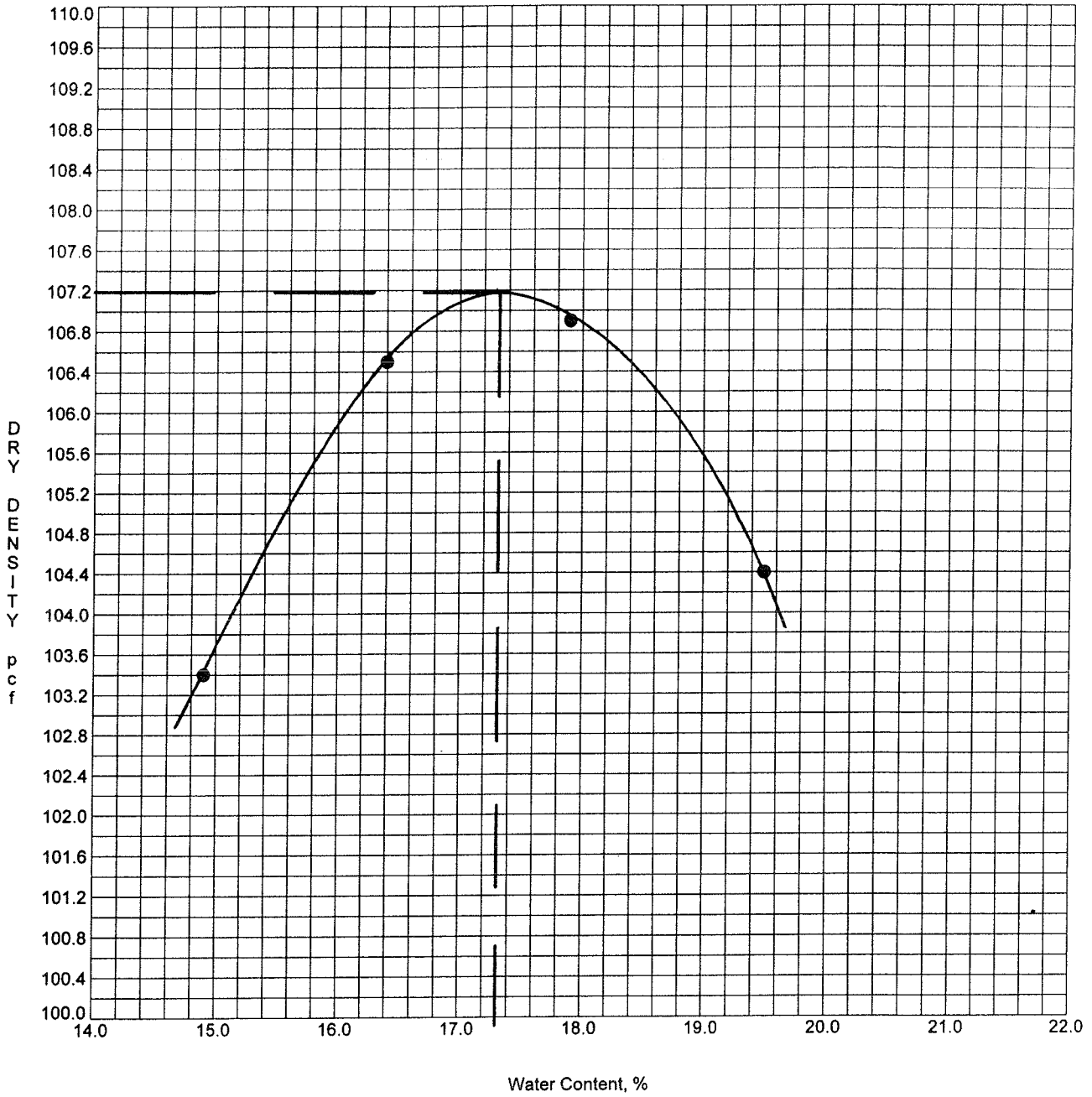
Project No. STP-9930(029) **Project** CR 600 W, US 52 to CR 200 N

Structure No. --- **Location** Hancock County, Indiana

EEI Proj. No. 1-03-344 **Client** USI Consultants, Inc.

MOISTURE - DENSITY RELATIONS

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)



Sample Identification	Station / Offset / Line	Depth, ft.	Elevation, USC+GS
● RB-25A BS-1	188+00 20 ft Rt. "A"	1.0 - 2.5	848.0 - 846.5

Lab No.	Classification	As Received M.C., %	Optimum M.C., %	Maximum Dry Den., pcf	Test Method
5865SL	CLAY LOAM A-7-6 (17)	---	17.3	107.2	AASHTO T 99

EARTH EXPLORATION, Inc.

Project No. STP-9930(029) **Project** CR 600 W, US 52 to CR 200 N
Structure No. --- **Location** Hancock County, Indiana
EEI Proj. No. 1-03-344 **Client** USI Consultants, Inc.

MOISTURE - DENSITY RELATIONS

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)

SUMMARY OF CBR TEST RESULTS

PROJECT:	CR 600 W, US 52 to CR 200 N
LOCATION:	Hancock County, Indiana
CLIENT:	Indiana Department of Transportation
EEI PROJECT NO.:	1-03-344
BORING NO.:	RB-16A
LOCATION:	125+00, 25 ft Rt. "A"
SAMPLE DEPTH, ft:	1 – 3
SOIL DESCRIPTION:	Clay Loam, A-6 (7)
MAXIMUM DRY DENSITY, pcf:	108.1
OPT. MOISTURE CONTENT, %:	17.2
SURCHARGE WEIGHT, lbs:	25.0

TEST DATA

Specimen No.	Blows/ Layer	Initial Dry Density, lb/ft^3	% Max. Dry Density	Avg. Water Content, %		Swell, %	CBR, % @ 0.1" Pen.	CBR, % @ 0.2" Pen.
				As Molded	After Soaking			
1	56	108.3	100.2	16.9	18.8	0.63	6.5	6.4
2	56	108.4	100.3	16.9	19.2	0.68	5.9	5.9
3	35	103.2	95.5	17.1	21.3	1.18	2.7	2.8
4	35	103.3	95.6	16.9	21.1	1.24	2.5	2.7
5	25	98.7	91.3	17.2	22.8	1.35	1.8	1.6
6	20	98.0	90.7	16.8	23.8	1.35	1.2	1.2

TEST RESULTS

Dry Density, pcf	Percent Maximum Dry Density	CBR, %
100.5	93.0	1.8
102.7	95.0	2.5
104.9	97.0	3.7

SUMMARY OF CBR TEST RESULTS

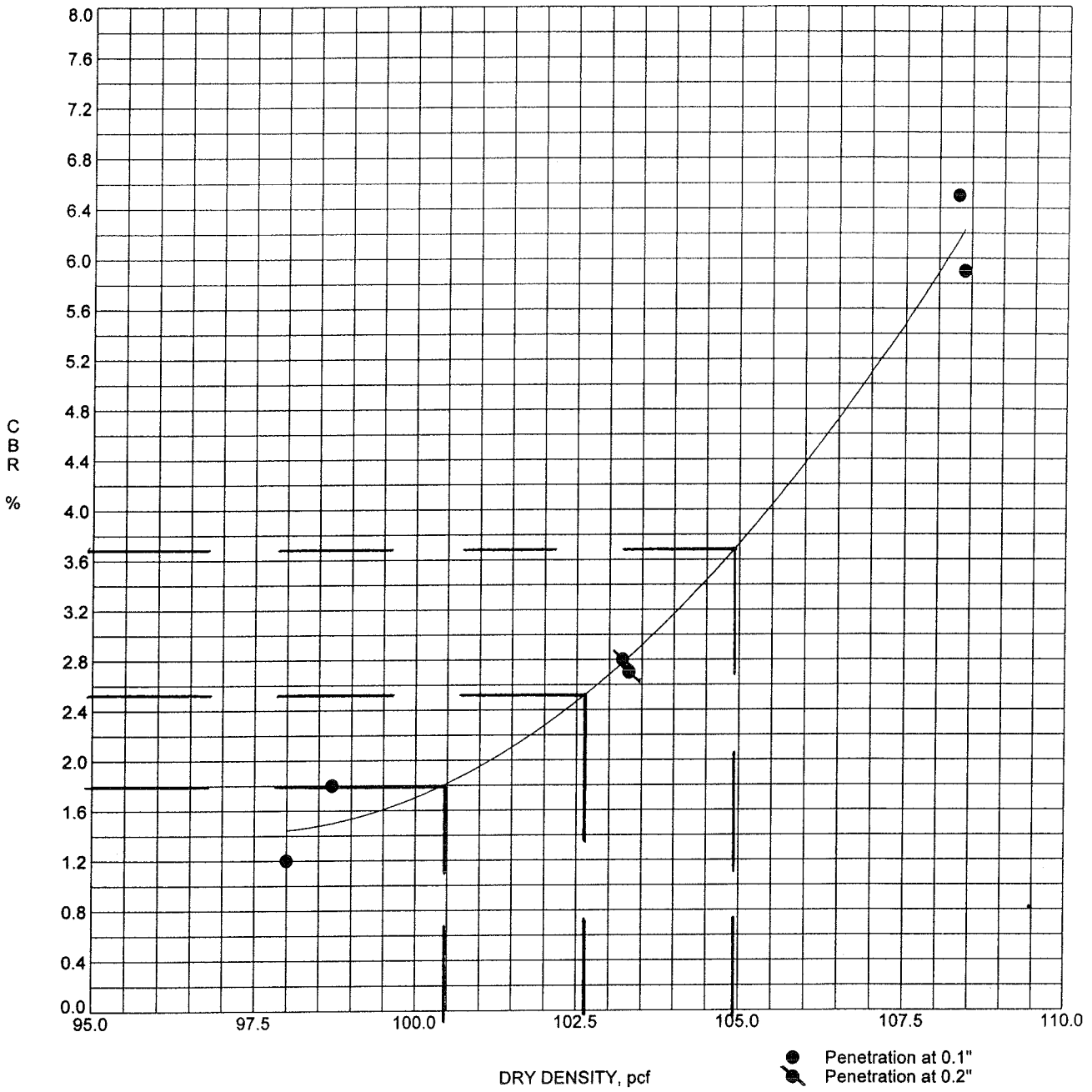
PROJECT:	CR 600 W, US 52 to CR 200 N
LOCATION:	Hancock County, Indiana
CLIENT:	Indiana Department of Transportation
EEI PROJECT NO.:	1-03-344
BORING NO.:	RB-25A
LOCATION:	188+00, 20 ft Rt. "A"
SAMPLE DEPTH, ft:	1 – 2.5
SOIL DESCRIPTION:	Clay Loam, A-7-6 (17)
MAXIMUM DRY DENSITY, pcf:	107.2
OPT. MOISTURE CONTENT, %:	17.3
SURCHARGE WEIGHT, lbs:	25.0

TEST DATA

Specimen No.	Blows/ Layer	Initial Dry Density, lb/ft^3	% Max. Dry Density	Avg. Water Content, %		Swell, %	CBR, % @ 0.1" Pen.	CBR, % @ 0.2" Pen.
				As Molded	After Soaking			
1	56	106.5	99.3	18.0	20.3	0.72	6.1	5.6
2	56	106.2	99.1	18.1	20.4	0.72	6.1	5.4
3	35	101.9	95.1	18.1	22.5	1.18	3.0	3.2
4	35	101.8	95.0	18.1	21.4	0.98	4.3	4.0
5	23	96.5	90.0	18.1	23.7	1.37	1.8	1.8
6	20	96.3	89.8	18.1	24.6	1.51	1.6	1.7

TEST RESULTS

Dry Density, pcf	Percent Maximum Dry Density	CBR, %
99.7	93.0	2.7
101.8	95.0	3.6
104.0	97.0	4.7



Sample Identification		Station / Offset / Line	Depth, ft.	Classification
RB-16A	BS-1	125+00 25 ft Rt. "A"	1.0 - 3.0	CLAY LOAM A-6 (7)

Lab No.	Maximum Wet Den, pcf	Maximum Dry Den, pcf	Optimum M.C., %	LL	PL	PI	CBR at 93%	CBR at 95%	CBR at 97%
5864SL	126.7	108.1	17.2	30	18	12	1.8	2.5	3.7

% Passing No. 10	% Passing No. 40	% Passing No. 200	%Gravel	%Sand	%Silt	%Clay
96.4	91.2	71.0	3.6	25.4	46.5	24.5

EARTH EXPLORATION, Inc.

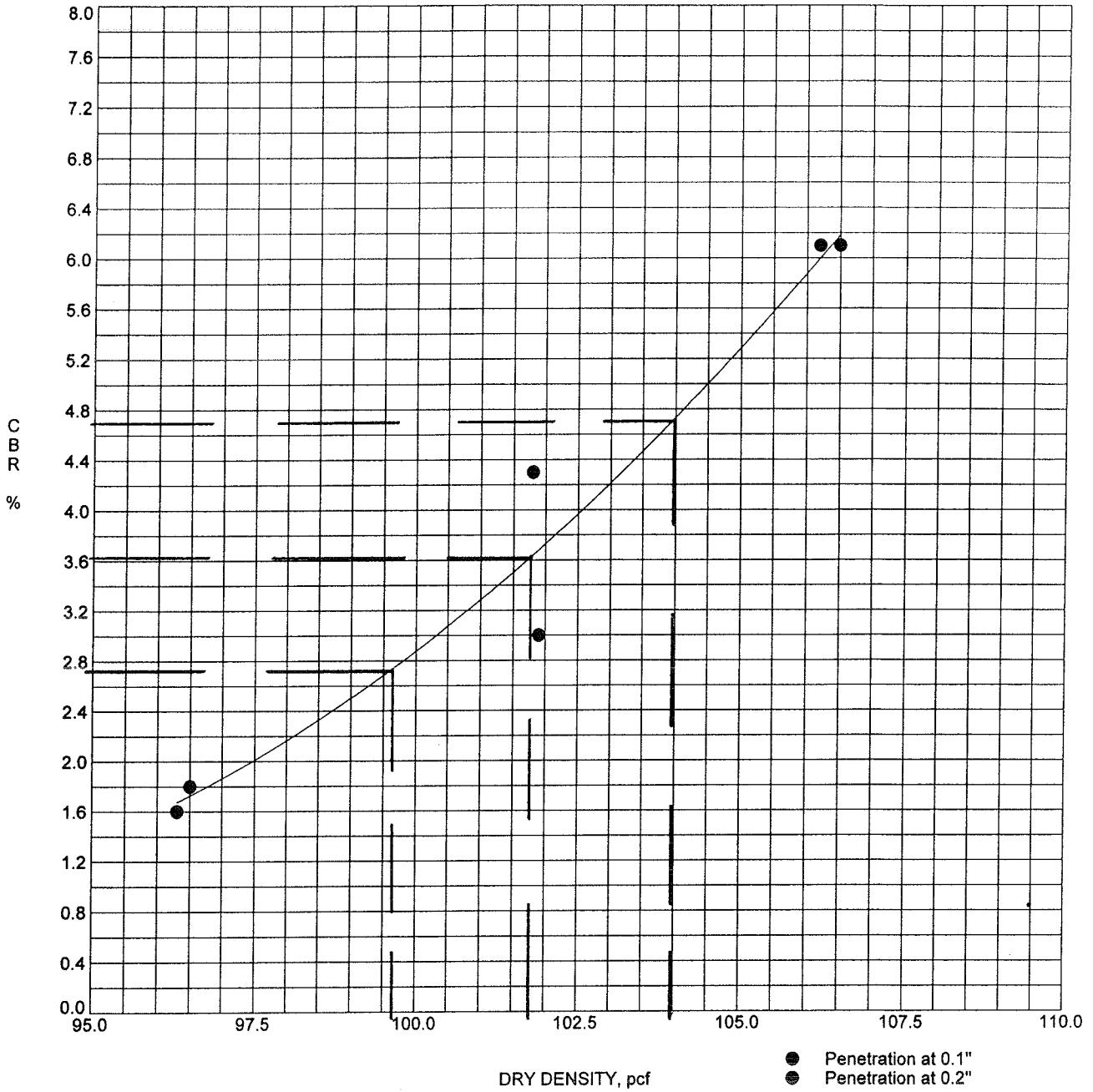
Project No. STP-9930(029) **Project** CR 600 W, US 52 to CR 200 N

Structure No. --- **Location** Hancock County, Indiana

EEI Proj. No. 1-03-344 **Client** USI Consultants, Inc.

CALIFORNIA BEARING RATIO

Earth Exploration, Inc.
7770 West New York Street Indianapolis, Indiana 46214
317-273-1690 / 317-273-2250 (Fax)



Sample Identification	Station / Offset / Line	Depth, ft.	Classification
RB-25A BS-1	188+00 20 ft Rt. "A"	1.0 - 2.5	CLAY LOAM A-7-6 (17)

Lab No.	Maximum Wet Den, pcf	Maximum Dry Den, pcf	Optimum M.C., %	LL	PL	PI	CBR at 93%	CBR at 95%	CBR at 97%
5865SL	125.7	107.2	17.3	41	16	25	2.7	3.6	4.7

% Passing No. 10	% Passing No. 40	% Passing No. 200	%Gravel	%Sand	%Silt	%Clay
99.1	95.1	73.9	0.9	25.2	44.4	29.5

EARTH EXPLORATION, Inc.

Project No. STP-9930(029) **Project** CR 600 W, US 52 to CR 200 N

Structure No. --- **Location** Hancock County, Indiana

EEI Proj. No. 1-03-344 **Client** USI Consultants, Inc.

CALIFORNIA BEARING RATIO

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7770 West New York Street Indianapolis, Indiana 46214
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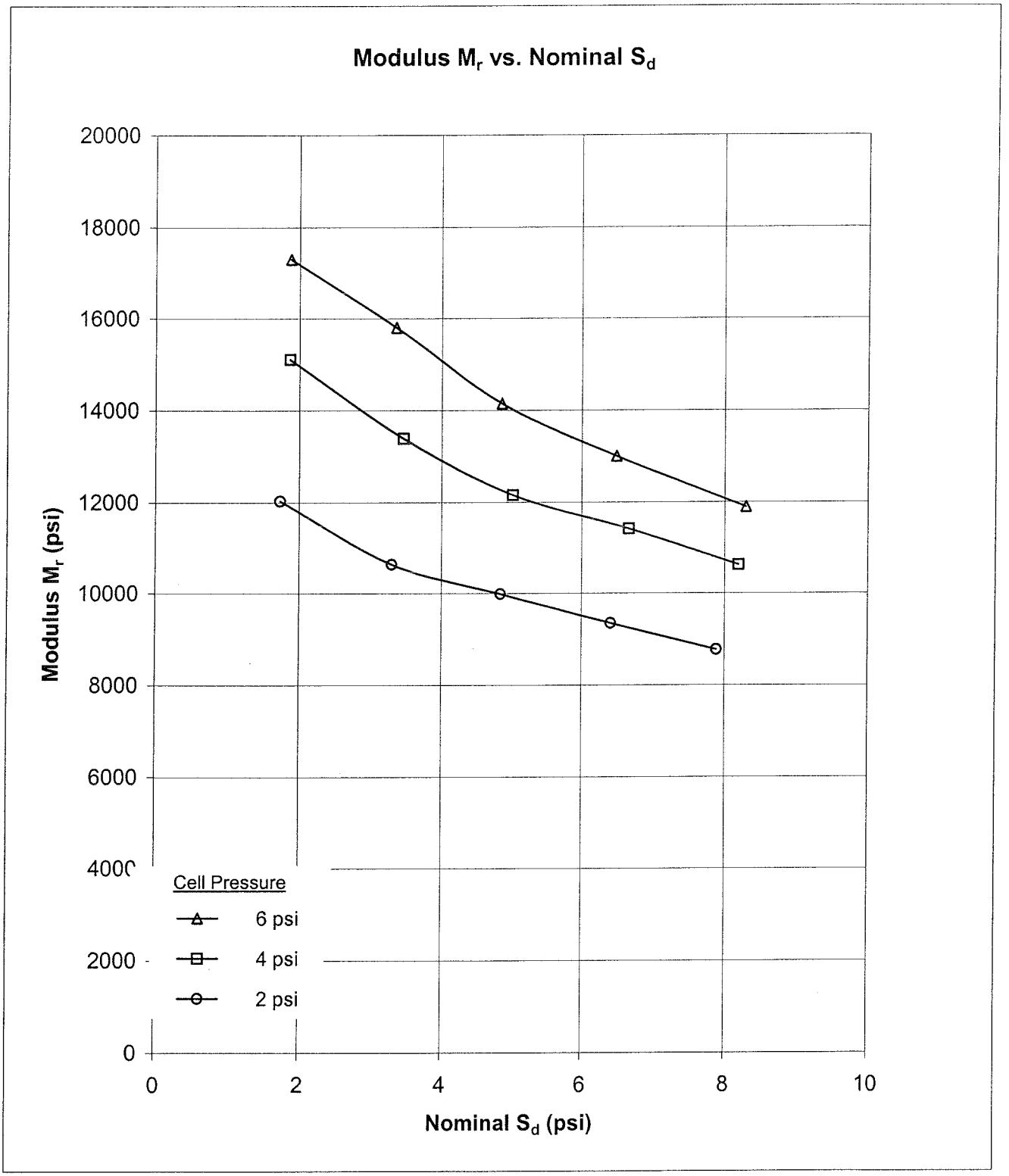


Resilient Modulus Test Results

RB-16A_BS-1a

CR 600 W, US 52 to CR 300 N

Compacted Specimen at 95% Optimum Moisture, Optimum Moisture

TRIAXIAL TEST (AASHTO T-307-99): Specimen Setup / Take Down

Project Number: 0401-1484 Test Type: Res Mod Cell No.: 1 File Name: RB-16A_BS-1a
Task No.:
Project Name: 1-03-344
Assig. Remarks: Compact to 95% of max dry density at opt moisture content Specific Gravity: 2.720 [ ] Meas.; [X] Assumed

[ ] Tube [ ] Field Extruded [ ] Liner [ ] Remolded	[ ] Tamping	[ ] Constant Effort:	Blows/Tamps per Layer = -
Boring No.: RB-16A [X] Reconstituted	[ ] Impact/Rammer	Rammer Wgt.(lbf)=	No. Layers = 5.00
Sample No.: BS-1 Compostite No.:	[ ] Pluviated:	Tamper Force (lbf)=	Drop (in.) = -
Depth (ft): 1 - 3 Specimen No.: a	[ ] Kneading	[ ] Undercompaction: U_{ni} (%) =	Dia. (in.) = -
[ ] Spec. Selection by X-ray; [ ] Geomarine Sample	[X] Std	Ref. Effort = -	% Comp. = 95.0 ± Opt. = 0

Water Content (WC);	Initial - Trimming Location			Final, W_{at}
	Top ($W_{o,1}$)	Bottom ($W_{o,2}$)	Sides ($W_{o,3}$)	(see below)
Container No	578			101
Mass Moist Soil + Cont. (g)	135.98			1313.66
Mass Dry Soil + Container (g)	121.09			1156.20
Mass Container (g)	31.83			200.65
Water Content, $W_{o,n}$ (%)	16.68			16.48
Avg. Initial WC, $W_{o,avg}$ (%)	16.68	Final (W_{at}); [X] Slice ; [ ]		Whole Spec.

[ ] See attached data sheet(s) for additional water contents

SOIL MASSES:	Initial	Final
Moist + Tare (etc.)(g)	1108.80	1114.10
Tare (etc.) (g)	0.00	0.00
Mass Moist Spec., $M_{t,n}$ (g)	1108.80	1114.10
Excess Dry Soil (soil not included in final mass measurement)		
Container No.		
Mass Dry Soil + Cont. (g)		
Mass Container (g)		
Mass Excess Dry Soil, $M_{d,es}$ (g)		0.00

Specimen Dimensions, (mm)

	Height		Dia., X indicates with membrane			
	Initial (H_o)	Final (H_{at})	Initial (D_o)		Final (D_{at})	
GB	127.000	127.000	1 T	71.20	71.30	[ ] For
1	16.73	16.84	2 M	71.20	71.30	Wedge
2	16.66	17.23	3 B	71.20	71.30	Failure
3	16.77	16.98	1'T			= d_{max}
4	16.90	16.87	2'M			= d_{min}
5	16.79	17.22	3'B			= Δd
Avg.	143.77	144.03	Avg.	71.20	NA	xxxxx

Measuring Devices:
Pi Tape: [X] Dia
Calipers: [ ] Ht.; [ ] Dia
Dial Comparator: [X] Ht.; [ ] Dia
Remarks:

$A_o = \pi D^2/400$ (cm^2)	39.82
V_o (cm^3)	572.42
$A_{atb,m} = \pi (D^*_{at})^2 /400$ (cm^2)	NA
$A_{atw,m} = (d_{min} - 2\Delta d) d_{max} \pi /400$ (cm^2)	NA
$D^*_{at} = (D_T + 2D_M + D_B)/4$ (mm)	NA

Estimated Initial Unit Weight

Total, $\gamma_{t,o}$ (lbf/ft^3) 120.92 Dry, $\gamma_{d,o}$ (lbf/ft^3) 103.64

Membrane / Filter Paper / Apparatus

Membrane (mm):	Top	Bottom
Number: = Thickness: [ ] Single; [ ] Double		
Circumference ($C_{rm,o}$)		
(1) Total thickness, if 2+ membranes Average:	Thickness (1)	Dia.($C_{rm,o}/\pi$)

Filter Paper: Top + Bottom: [X] Yes ; [ ] No
Filter Strips: [ ] Yes ; [X] No Number =
Type of Filter Strips: [ ] Vertical: ¼ in. & Whatman #54
[ ] Sprial: ¼ in. & Whatman #1

Apparatus: Mass Top Cap, M_{tc} = NA g, NA lbf
Mass Displ. System, M_{ds} (cap, dial, piston, etc.) = NA g, NA lbf

Top Cap Attached: [ ] Yes; [X] No; Piston Dia.(in.) [X] ½; [ ] ¾; [ ] Load Cell: [X] External [ ] Internal
Top Cap; Rotation: [ ] Fixed,<1°; [X] Limited,<5°; [ ] Unlimited, >5°
App. with: [ ] Frictionless End Caps; [ ] Lat. Movement Top Cap
[ ] Internal LVDT Jacket

[ ] Photo Taken.
Failure Sketch
ε_a=
20%→

Failure Mode:
[ ] Bulge
[ ] Wedge
[ ] Parabolic
Wedge/Bulge Ht.=
(mm)

NA - Not Applicable
GB - Gage Block
Other Remarks:

Final Visual Classification: Sandy Clay, brown with roots and gravel

Trimmed / Reconstituted By: DBN Setup By: MNM Take Down By: MNM
Date: 1/23/2004 Date: 1/26/2004 Date: 1/26/2004
Prelim. Calc. By: DBN Final Calc. By: MNM
[ ] See more detailed sketch on attached sheet. Reviewed By: HP Spot Chk. By: WHD Checked By:

Resilient Modulus Test Data Sheet

AASHTO Designation: T 307-99 (1999)

Project Number: 0401-1484 | Task Number: | Boring/Exploration No.: RB-16A

Project Name: 1-03-344 | Assignment Number: NA | Sample No.: BS-1

Project Engineer: | Penetration/Depth (ft): 1 - 3

Specific Gravity: 2.720 [ ] Measured; [X] Assumed

Soil Description: Sandy Clay, brown with roots and gravel

Soil Masses	Initial	Final
Tare + Wet Soil (g):	NA	NA
Mass of Wet Soil Used(g):	NA	

After Resilience Testing

Final Wet Mass (g): 1114.10

Mass Dried Spec. (g): 956.49

Water Content (%): 16.48

Initial Specimen Parameters

Initial Area (in^2): 6.17

Volume (cm^3): 572.42

Compaction w_c

Water Content (%): 16.68

Saturation (%): NA

Wet Density (pcf): 120.92

Dry Density (pcf): 103.64

Specimen Measurements--(mm)

*Diameter: Top: 71.20

Middle: 71.20 Average: 71.20

Bottom: 71.20

Specimen Measurements--(in)

Net Diameter NA Ht. Platens: NA

Inside Diameter Of Mold NA

Membrane Thickness: NA X2

	Initial	Final
Ht. Spec. + Platens:	NA	NA
Specimen height:	5.66	NA

*Total of specimen diameter plus twice the membrane thickness.

Cell Pressure (psi)	Nominal S_d (psi)	Load Cell Chart Reading	K_1	Axial Load (lbs)	S_d (psi)	DT Chart Reading	K_1	Recov. Def. mm (in.)	E_r mm/mm (in./in.)	$M_r = S_d/E_r$ (psi)
6	2	11.59759814	1	11.59759814	1.879254716	0.015608214	0.0394	0.000614964	0.000108647	17296.94731
6	4	20.70711618	1	20.70711618	3.355345243	0.030506181	0.0394	0.001201944	0.000212349	15801.06627
6	6	30.02958116	1	30.02958116	4.865941322	0.049408555	0.0394	0.001946697	0.000343926	14148.21788
6	8	40.05636114	1	40.05636114	6.490663384	0.07170003	0.0394	0.002824981	0.000499094	13004.89271
6	10	51.20254376	1	51.20254376	8.296771512	0.100239391	0.0394	0.003949432	0.000697752	11890.70857
4	2	11.50424426	1	11.50424426	1.864127815	0.017723714	0.0394	0.000698314	0.000123372	15109.77432
4	4	21.34544856	1	21.34544856	3.458779516	0.037105035	0.0394	0.001461938	0.000258283	13391.43313
4	6	31.01023004	1	31.01023004	5.024843968	0.059371224	0.0394	0.002339226	0.000413275	12158.60088
4	8	41.11353132	1	41.11353132	6.661965409	0.083823371	0.0394	0.003302641	0.000583483	11417.58558
4	10	50.58263502	1	50.58263502	8.196322573	0.110830248	0.0394	0.004366712	0.000771474	10624.23728
2	2	10.70558862	1	10.70558862	1.734715039	0.020714702	0.0394	0.000816159	0.000144192	12030.57758
2	4	20.35859646	1	20.35859646	3.298871711	0.044548159	0.0394	0.001755197	0.000310094	10638.31119
2	6	29.94342526	1	29.94342526	4.851980769	0.069807337	0.0394	0.002750409	0.000485919	9985.159911
2	8	39.57415128	1	39.57415128	6.412526934	0.09858607	0.0394	0.003884291	0.000686244	9344.383896
2	10	48.6886404	1	48.6886404	7.889422965	0.129223489	0.0394	0.005091405	0.000899507	8770.832187

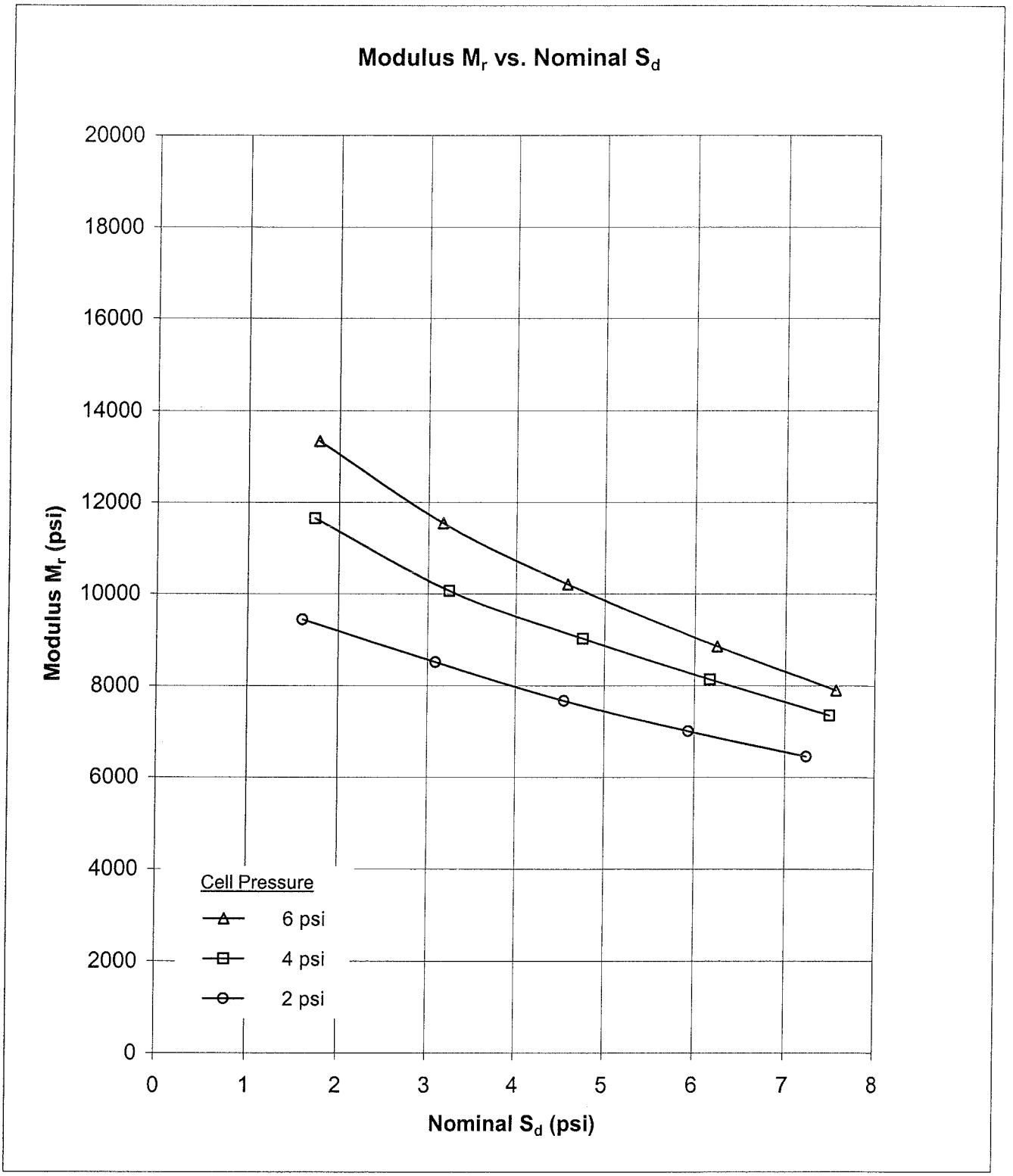
Job Number: 0401-1484
Boring: RB-16A
Sample: BS-1
Depth: 1 - 3

Import Raw Data

Filter Raw Data

SEQUENCE

SEQUENCE		96 Load (lbs)	96 Def # 1 (mm)	96 Def # 2 (mm)	97 Load (lbs)	97 Def # 1 (mm)	97 Def # 2 (mm)	98 Load (lbs)	98 Def # 1 (mm)	98 Def # 2 (mm)	99 Load (lbs)	99 Def # 1 (mm)	99 Def # 2 (mm)	100 Load (lbs)	100 Def # 1 (mm)	100 Def # 2 (mm)	Average Load (lbs)	Average Def # 1 (mm)	Average Def # 2 (mm)	Average Def # 1 & 2 (mm)	Percent Dev. For Def # 1 (%)	Percent Dev. For Def # 2 (%)
1	(MAX)	11.53803407	0.0149467	0.01569819	11.66976115	0.01514923	0.01593924	11.68776639	0.01567578	0.01655888	11.56276342	0.01462268	0.01659334	11.52966567	0.0150277	0.0158704	11.598	0.015	0.016	0.016	-3.36%	3.36%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
2	(MAX)	20.7231703	0.02892124	0.03050137	20.6886292	0.03070354	0.03198165	20.7420874	0.03054148	0.03236032	20.6727391	0.02956939	0.03067344	20.7089549	0.02920478	0.0306046	20.707	0.030	0.031	0.031	-2.35%	2.35%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
3	(MAX)	30.0250047	0.04840469	0.05057169	30.0522701	0.04791856	0.05046839	30.0202333	0.04799962	0.05081266	30.0430782	0.04755401	0.05095035	30.0073195	0.0482831	0.05112248	30.030	0.048	0.051	0.049	-2.79%	2.79%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
4	(MAX)	40.0689518	0.06906271	0.07284522	40.0596025	0.06954879	0.07360256	40.0937567	0.07007539	0.07408452	40.0146665	0.07003486	0.0736714	40.0448282	0.07019686	0.07387799	40.056	0.070	0.074	0.072	-2.67%	2.67%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
5	(MAX)	51.2157442	0.09761947	0.10203838	51.1416829	0.09778148	0.10255477	51.2009908	0.09770048	0.10317442	51.1945199	0.09749788	0.10283015	51.259781	0.09778148	0.1034154	51.203	0.098	0.103	0.100	-2.56%	2.56%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
6	(MAX)	11.36548511	0.01709354	0.01817692	11.54936752	0.01745808	0.01841783	11.73505118	0.01766062	0.0183146	11.42357715	0.016972	0.01824569	11.44774032	0.01713407	0.01776379	11.504	0.017	0.018	0.018	-2.60%	2.60%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
7	(MAX)	21.3621597	0.03580731	0.03700787	21.428029	0.03540224	0.0365259	21.2461634	0.03605032	0.03852254	21.3996462	0.03726554	0.0384537	21.2912445	0.03763008	0.03838485	21.345	0.036	0.038	0.037	-1.82%	1.82%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
8	(MAX)	31.0544648	0.0584501	0.06069291	30.9830614	0.05796409	0.06076175	31.0368822	0.0581261	0.06052077	30.9923953	0.05812609	0.06021089	30.9843465	0.05816663	0.06069291	31.010	0.058	0.061	0.059	-2.03%	2.03%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
9	(MAX)	41.1722997	0.0821867	0.08568609	41.1263471	0.08178162	0.08599591	41.1611528	0.08170062	0.08544511	41.0322039	0.08218669	0.08565164	41.0756531	0.0817411	0.08585823	41.114	0.082	0.086	0.084	-2.27%	2.27%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
10	(MAX)	50.6203487	0.10778647	0.11377758	50.5854714	0.10766495	0.11264157	50.5884865	0.10790795	0.11322683	50.5512902	0.10883963	0.11456937	50.5675783	0.10811049	0.11377764	50.583	0.108	0.114	0.111	-2.50%	2.50%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
11	(MAX)	10.52370903	0.02086056	0.02144736	10.77761503	0.02013153	0.02068997	10.67421906	0.02029347	0.0207932	10.81283344	0.02158969	0.02161944	10.73956654	0.01968593	0.02003587	10.706	0.021	0.021	0.021	-0.98%	0.98%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
12	(MAX)	20.4071692	0.04403001	0.04530448	20.3526837	0.04350346	0.0456143	20.300392	0.04346293	0.0450635	20.3969889	0.04382753	0.04571759	20.3357485	0.04358447	0.04537332	20.359	0.044	0.045	0.045	-1.95%	1.95%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
13	(MAX)	29.9650365	0.06768548	0.07019442	29.9433392	0.06837415	0.07133048	29.9124057	0.06902218	0.07153702	29.9822829	0.06849563	0.0711239	29.914062	0.06873864	0.07157147	29.943	0.068	0.071	0.070	-1.93%	1.93%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
14	(MAX)	39.5608437	0.09628278	0.10131544	39.5530949	0.09705233	0.1011433	39.5707102	0.09608024	0.10104006	39.5360026	0.09644479	0.10055805	39.650105	0.09603971	0.099904	39.574	0.096	0.101	0.099	-2.24%	2.24%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
15	(MAX)	48.7540686	0.12585211	0.13202333	48.6323506	0.12629771	0.13212663	48.6670235	0.12564963	0.13212663	48.6951759	0.12613565	0.13253975	48.6945834	0.12670272	0.13278073	48.689	0.126	0.132	0.129	-2.40%	2.40%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						



Resilient Modulus Test Results

RB-16A_BS-1b

CR 600 W, US 52 to CR 300 N

Compacted Specimen at 95% Optimum Moisture, Optimum Moisture +2%

TRIAXIAL TEST (AASHTO T-307-99): Specimen Setup / Take Down

Project Number: 0401-1484 Test Type: Res Mod Cell No.: 1 File Name: RB-16A_BS-1b

Task No.:

Project Name: 1-03-344

Assig. Remarks: +2% opt moisture content Specific Gravity: 2.720 [ ] Meas.; [X] Assumed

[ ] Tube [ ] Field Extruded [ ] Liner [ ] Remolded	[ ] Tamping	[ ] Constant Effort:	Blows/Tamps per Layer = -
Boring No.: RB-16A [X] Reconstituted	[ ] Impact/Rammer	Rammer Wgt.(lbf)=	No. Layers = 5.00
Sample No.: BS-1 Compostite No.:	[ ] Pluviated:	Tamper Force (lbf)=	Drop (in.) = -
Depth (ft): 1-2.5' Specimen No.: b	[ ] Kneading	[ ] Undercompaction: U_{ni} (%) =	Dia. (in.) = -
[ ] Spec. Selection by X-ray; [ ] Geomarine Sample	[X] Std	Ref. Effort = -	% Comp. = 95.0 ± Opt. = +2

Water Content (WC);	Initial - Trimming Location			Final, W_{at}
	Top ($W_{o,1}$)	Bottom ($W_{o,2}$)	Sides ($W_{o,3}$)	(see below)
Container No	175			LAB 130
Mass Moist Soil + Cont. (g)	139.67			1330.10
Mass Dry Soil + Container (g)	121.55			1147.05
Mass Container (g)	30.17			201.29
Water Content, $W_{o,n}$ (%)	19.83			19.35
Avg. Initial WC, $W_{o,avg}$ (%)	19.83	Final (W_{at}); [X] Slice ; [ ] Whole Spec.		

[ ] See attached data sheet(s) for additional water contents

SOIL MASSES:	Initial	Final
Moist + Tare (etc.)(g)	1127.90	1128.90
Tare (etc.) (g)	0.00	0.00
Mass Moist Spec., $M_{t,n}$ (g)	1127.90	1128.90
Excess Dry Soil (soil not included in final mass measurement)		
Container No.		
Mass Dry Soil + Cont. (g)		
Mass Container (g)		
Mass Excess Dry Soil, $M_{d,es}$ (g)		0.00

Specimen Dimensions, (mm)

	Height		Dia., X indicates with membrane			
	Initial (H_o)	Final (H_{at})	Initial (D_o)		Final (D_{at})	
GB	127.000	127.000	1 T	71.20	71.40	[ ] For
1	16.93	16.37	2 M	71.20	71.80	Wedge
2	16.72	16.80	3 B	71.20	71.50	Failure
3	16.37	16.62	1'T			= d_{max}
4	16.53	16.33	2'M			= d_{min}
5	16.66	16.62	3'B			= Δd
Avg.	143.64	143.55	Avg.	71.20	NA	xxxxx

Measuring Devices:
Pi Tape: [X] Dia
Calipers: [ ] Ht.; [ ] Dia
Dial Comparator: [X] Ht.; [ ] Dia
Remarks:

$A_o = \pi D^2/400$ (cm^2)	39.82
V_o (cm^3)	571.91
$A_{atb,m} = \pi (D^*_{at})^2/400$ (cm^2)	NA
$A_{atw,m} = (d_{min} - 2\Delta d) d_{max} \pi/400$ (cm^2)	NA
$D^*_{at} = (D_T + 2D_M + D_B)/4$ (mm)	NA

Estimated Initial Unit Weight

Total, $\gamma_{t,o}$ (lbf/ft^3) 123.12 Dry, $\gamma_{d,o}$ (lbf/ft^3) 102.74

Membrane / Filter Paper / Apparatus

Membrane (mm):	Top	Bottom
Number: = Thickness: [ ] Single; [ ] Double		
Circumference ($C_{rm,o}$)		
(1) Total thickness, if 2+ membranes / Average:	Thickness (1)	Dia.($C_{rm,o}/\pi$)

Filter Paper: Top + Bottom: [X] Yes ; [ ] No
Filter Strips: [ ] Yes ; [X] No Number =
Type of Filter Strips: [ ] Vertical: ¼ in. & Whatman #54
[ ] Sprial: ¼ in. & Whatman #1

Apparatus: Mass Top Cap, M_{tc} = NA g, NA lbf
Mass Displ. System, M_{ds} (cap, dial, piston, etc.) = NA g, NA lbf

Top Cap Attached: [ ] Yes; [X] No; Piston Dia.(in.) [X] ½; [ ] ¾; [ ] Load Cell: [X] External [ ] Internal
Top Cap; Rotation: [ ] Fixed,<1°; [X] Limited,<5°; [ ] Unlimited, >5°
App. with: [ ] Frictionless End Caps; [ ] Lat. Movement Top Cap; [ ] Internal LVDT Jacket

[ ] Photo Taken.

Failure Sketch

ε_a=
20%→

Failure Mode:
[ ] Bulge
[ ] Wedge
[ ] Parabolic
Wedge/Bulge Ht.=
(mm)

NA - Not Applicable
GB - Gage Block
Other Remarks:

Final Visual Classification: Sandy Clay, brown with roots and gravel

Trimmed / Reconstituted By: DBN Setup By: MNM Take Down By: MNM
Date: 1/24/2004 Date: 1/26/2004 Date: 1/26/2004
Prelim. Calc. By: DBN Final Calc. By: MNM
[ ] See more detailed sketch on attached sheet. Reviewed By: HP Spot Chk. By: WFD Checked By:

Resilient Modulus Test Data Sheet

AASHTO Designation: T 307-99 (1999)

Project Number: 0401-1484 | Task Number: | Boring/Exploration No.: RB-16A

Project Name: 1-03-344 | Assignment Number: NA | Sample No.: BS-1

Project Engineer: | Penetration/Depth (ft): 1-2.5'

Specific Gravity: 2.720 [ ] Measured; [X] Assumed

Soil Description: Sandy Clay, brown with roots and gravel

Soil Masses	Initial	Final
Tare + Wet Soil (g):	NA	NA
Mass of Wet Soil Used(g):	NA	
After Resilience Testing		
Final Wet Mass (g):	1128.90	
Mass Dried Spec. (g):	945.84	
Water Content (%):	19.35	

Initial Specimen Parameters	
Initial Area (in^2):	6.17
Volume (cm^3):	571.91
Compaction w_c	
Water Content (%):	19.83
Saturation (%):	NA
Wet Density (pcf):	123.12
Dry Density (pcf):	102.74

Specimen Measurements--(mm)

*Diameter: Top: 71.20

Middle: 71.20 Average: 71.20

Bottom: 71.20

Specimen Measurements--(in)

Net Diameter NA Ht. Platens: NA

Inside Diameter Of Mold NA

Membrane Thickness: NA X2

	Initial	Final
Ht. Spec. + Platens:	NA	NA
Specimen height:	5.66	NA

*Total of specimen diameter plus twice the membrane thickness.

Cell Pressure (psi)	Nominal S_d (psi)	Load Cell Chart Reading	K_1	Axial Load (lbs)	S_d (psi)	DT Chart Reading	K_1	Recov. Def. mm (in.)	E_r mm/mm (in./in.)	$M_r = S_d/E_r$ (psi)
6	2	10.95628831	1	10.95628831	1.775337982	0.019100828	0.0394	0.000752573	0.000133077	13340.71314
6	4	19.5429512	1	19.5429512	3.166705965	0.039367753	0.0394	0.001551089	0.000274278	11545.62129
6	6	28.2742195	1	28.2742195	4.581505559	0.064419359	0.0394	0.002538123	0.000448814	10208.03179
6	8	38.56623718	1	38.56623718	6.249206279	0.1012265	0.0394	0.003988324	0.000705252	8860.961194
6	10	46.70246134	1	46.70246134	7.56758595	0.13745427	0.0394	0.005415698	0.000957653	7902.223735
4	2	10.68285434	1	10.68285434	1.731031215	0.021324076	0.0394	0.000840169	0.000148566	11651.58138
4	4	20.00652048	1	20.00652048	3.241821929	0.046230681	0.0394	0.001821489	0.000322092	10064.89063
4	6	29.34802936	1	29.34802936	4.755503849	0.075615352	0.0394	0.002979245	0.000526817	9026.860987
4	8	38.08291596	1	38.08291596	6.170889745	0.108820719	0.0394	0.004287536	0.000758161	8139.287536
4	10	46.24701932	1	46.24701932	7.493786914	0.146232567	0.0394	0.005761563	0.001018812	7355.419234
2	2	9.8824477	1	9.8824477	1.60133471	0.024346848	0.0394	0.000959266	0.000169626	9440.381996
2	4	19.08207714	1	19.08207714	3.092026731	0.052117463	0.0394	0.002053428	0.000363106	8515.500292
2	6	28.08473234	1	28.08473234	4.550801388	0.085131853	0.0394	0.003354195	0.000593119	7672.660651
2	8	36.62051746	1	36.62051746	5.933925225	0.121439788	0.0394	0.004784728	0.000846079	7013.442877
2	10	44.6742763	1	44.6742763	7.238942359	0.160919567	0.0394	0.006340231	0.001121137	6456.786977

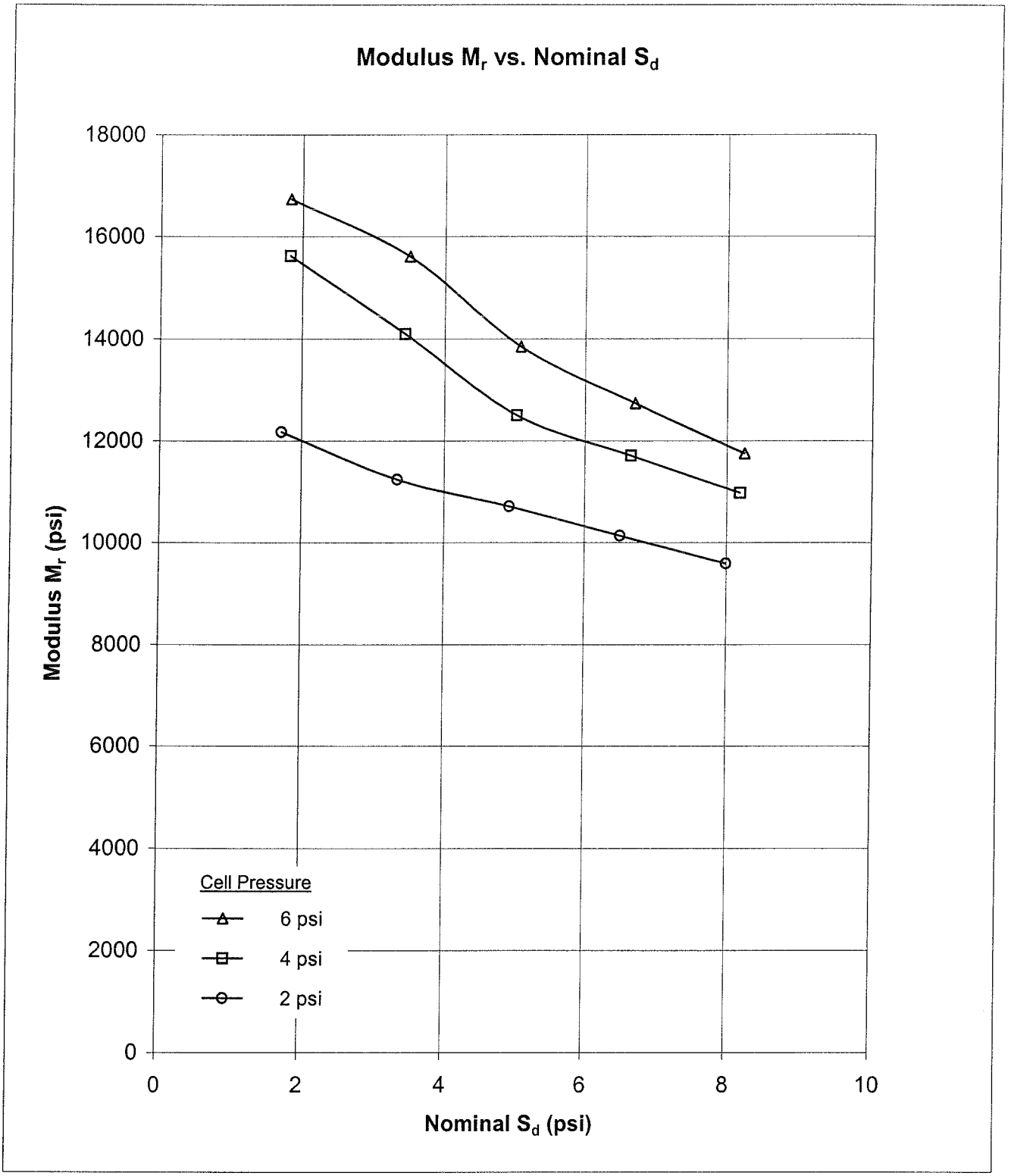
Job Number: 0401-1484
Boring: RB-16A
Sample: BS-1
Depth: 1-2.5'

Import Raw Data

Filter Raw Data

SEQUENCE

SEQUENCE		96 Load (lbs)	96 Def # 1 (mm)	96 Def # 2 (mm)	97 Load (lbs)	97 Def # 1 (mm)	97 Def # 2 (mm)	98 Load (lbs)	98 Def # 1 (mm)	98 Def # 2 (mm)	99 Load (lbs)	99 Def # 1 (mm)	99 Def # 2 (mm)	100 Load (lbs)	100 Def # 1 (mm)	100 Def # 2 (mm)	Average Load (lbs)	Average Def # 1 (mm)	Average Def # 2 (mm)	Average Def # 1 & 2 (mm)	Percent Dev. For Def # 1 (%)	Percent Dev. For Def # 2 (%)
1	(MAX)	11.06210914	0.01883531	0.01972604	10.96026046	0.01798469	0.01927849	10.82099429	0.01855177	0.01979491	10.90473053	0.01859224	0.01993257	11.03334713	0.01855177	0.01976049	10.956	0.019	0.020	0.019	-3.13%	3.13%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
2	(MAX)	19.5550595	0.03787309	0.04027832	19.5394514	0.0387237	0.04089796	19.5597515	0.03896678	0.04034716	19.5624371	0.03811616	0.04020944	19.4980565	0.0383997	0.03986522	19.543	0.038	0.040	0.039	-2.42%	2.42%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
3	(MAX)	28.2847576	0.06327039	0.06568461	28.2626486	0.06266278	0.06578791	28.2680242	0.06278432	0.06540921	28.2939465	0.06343234	0.06599444	28.2617206	0.06331086	0.06585673	28.274	0.063	0.066	0.064	-2.06%	2.06%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
4	(MAX)	38.5629929	0.0991182	0.10320887	38.5827849	0.09923965	0.10286459	38.5888635	0.10033337	0.10437935	38.5524578	0.09814599	0.10255477	38.5440868	0.09928018	0.10314003	38.566	0.099	0.103	0.101	-1.98%	1.98%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
5	(MAX)	46.6583175	0.13447988	0.13866756	46.693051	0.13626221	0.14004457	46.7195425	0.13516852	0.14028556	46.7290935	0.13500649	0.13945931	46.7123022	0.13533056	0.13983804	46.702	0.135	0.140	0.137	-1.60%	1.60%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
6	(MAX)	10.65373344	0.02073908	0.02199813	10.74622519	0.02118462	0.02172277	10.65919587	0.02094161	0.0215162	10.61358014	0.02073908	0.02182603	10.74153704	0.02102262	0.02155062	10.683	0.021	0.022	0.021	-1.87%	1.87%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
7	(MAX)	20.0423739	0.04552871	0.0469225	20.0291506	0.04508316	0.0463717	20.000361	0.04585278	0.04688809	19.9349591	0.04528571	0.04712907	20.0257578	0.04577178	0.04747331	20.007	0.046	0.047	0.046	-1.57%	1.57%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
8	(MAX)	29.3402152	0.07445002	0.07690746	29.3007893	0.07440948	0.07649437	29.3878802	0.07453102	0.07659763	29.3772672	0.07457155	0.07783697	29.3339949	0.07396394	0.07639108	29.348	0.074	0.077	0.076	-1.63%	1.63%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
9	(MAX)	38.0303007	0.1068953	0.10999074	38.0997175	0.10661179	0.11067927	38.0594471	0.10770541	0.11112681	38.1377793	0.10762444	0.11074815	38.0873352	0.10649026	0.11033502	38.083	0.107	0.111	0.109	-1.61%	1.61%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
10	(MAX)	46.283342	0.14359373	0.14892647	46.2756791	0.14306716	0.14799696	46.2357415	0.14424184	0.14899531	46.1987225	0.1441203	0.14899531	46.2416115	0.14363426	0.14875433	46.247	0.144	0.149	0.146	-1.71%	1.71%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
11	(MAX)	9.8645858	0.02357453	0.0246489	9.8710441	0.02414161	0.02482104	9.800544	0.02418209	0.02461452	9.9342833	0.02422261	0.02530301	9.9417813	0.02365548	0.02430469	9.882	0.024	0.025	0.024	-1.61%	1.61%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
12	(MAX)	19.1355467	0.05148316	0.05339455	19.0902839	0.05152363	0.05260276	19.047207	0.05132109	0.0525339	19.0852617	0.05111861	0.0530503	19.0520864	0.05119962	0.05294701	19.082	0.051	0.053	0.052	-1.51%	1.51%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
13	(MAX)	28.1054245	0.08433348	0.08640901	28.0813022	0.0837664	0.08654669	28.0738157	0.08384746	0.08599588	28.0800692	0.08421194	0.08664998	28.0830501	0.0833208	0.08623689	28.085	0.084	0.086	0.085	-1.45%	1.45%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
14	(MAX)	36.6256262	0.12005973	0.12324473	36.6156919	0.11941171	0.12283161	36.6030707	0.11900658	0.12248733	36.6136045	0.12026227	0.1229693	36.644594	0.12001925	0.12410537	36.621	0.120	0.123	0.121	-1.39%	1.39%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
15	(MAX)	44.6734059	0.15894553	0.16300667	44.6784734	0.15687975	0.16197386	44.6882341	0.15983662	0.16452139	44.6441392	0.15935057	0.16335091	44.6871289	0.15801388	0.16331649	44.674	0.159	0.163	0.161	-1.44%	1.44%
	(REBOUNC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						



Resilient Modulus Test Results

RB-25A_BS-1c

CR 600 W, US 52 to CR 300 N

Compacted Specimen at 95% Optimum Moisture, Optimum Moisture

TRIAXIAL TEST (AASHTO T-307-99): Specimen Setup / Take Down

Project Number: 0401-1484 Test Type: Res Mod Cell No.: 1 File Name: RB-25A_BS-1c
Task No.:
Project Name: 1-03-344
Assig. Remarks: Compact to 95% of max dry density at opt moisture content Specific Gravity: 2.720 [ ] Meas.; [X] Assumed

[ ] Tube [ ] Field Extruded	[ ] Liner [ ] Remolded	[ ] Tamping	[ ] Constant Effort:	Blows/Tamps per Layer =	-
Boring No.: RB-25A	[X] Reconstituted	[ ] Impact/Rammer	Rammer Wgt.(lbf)=	No. Layers =	5.00
Sample No.: BS-1	Compostite No.:	[ ] Pluviated:	Tamper Force (lbf)=	Drop (in.) =	-
Depth (ft): 1-2.5	Specimen No.: c	[ ] Kneading	[ ] Undercompaction: U_{ni} (%) =	Dia. (in.) =	-
[ ] Spec. Selection by X-ray;	[ ] Geomarine Sample	[X] Std	Ref. Effort =	% Comp. = 95.0	± Opt. = 0

Water Content (WC);	Initial - Trimming Location			Final, W_{at}
	Top ($W_{o,1}$)	Bottom ($W_{o,2}$)	Sides ($W_{o,3}$)	(see below)
Container No	172			LAB 126
Mass Moist Soil + Cont. (g)	91.10			1300.67
Mass Dry Soil + Container (g)	82.14			1135.73
Mass Container (g)	29.77			199.24
Water Content, $W_{o,n}$ (%)	17.11			17.61
Avg. Initial WC, $W_{o,avg}$ (%)	17.11	Final (W_{at}); [X] Slice ; [ ]		Whole Spec.
[ ] See attached data sheet(s) for additional water contents				

SOIL MASSES:	Initial	Final
Moist + Tare (etc.)(g)	1100.00	1102.50
Tare (etc.) (g)	0.00	0.00
Mass Moist Spec., $M_{t,n}$ (g)	1100.00	1102.50
Excess Dry Soil (soil not included in final mass measurement)		
Container No.		
Mass Dry Soil + Cont. (g)		
Mass Container (g)		
Mass Excess Dry Soil, $M_{d,es}$ (g)		0.00

Specimen Dimensions, (mm)

	Height			Dia., X indicates with membrane		
	Initial (H_o)	Final (H_{at})		Initial (D_o)	Final (D_{at})	
GB	127.000	127.000	1 T	71.20	71.20	[ ] For
1	16.57	16.63	2 M	71.20	71.20	Wedge
2	16.85	16.61	3 B	71.20	71.20	Failure
3	16.71	16.80	1'T			= d_{max}
4	16.40	17.01	2'M			= d_{min}
5	16.63	16.83	3'B			= Δd
Avg.	143.63	143.78	Avg.	71.20	NA	xxxxx

Measuring Devices:
Pi Tape: [X] Dia
Calipers: [ ] Ht.; [ ] Dia
Dial Comparator: [X] Ht.; [ ] Dia
Remarks:

$A_o = \pi D^2/400$ (cm^2)	39.82
V_o (cm^3)	571.87
$A_{atb,m} = \pi (D^*_{at})^2/400$ (cm^2)	NA
$A_{atw,m} = (d_{min} - 2\Delta d) d_{max} \pi/400$ (cm^2)	NA
$D^*_{at} = (D_T + 2D_M + D_B)/4$ (mm)	NA

Estimated Initial Unit Weight

Total, $\gamma_{t,o}$ (lbf/ft^3) 120.08 Dry, $\gamma_{d,o}$ (lbf/ft^3) 102.54

Membrane / Filter Paper / Apparatus

Membrane (mm):	Top	Bottom
Number: = Thickness: [ ] Single; [ ] Double		
Circumference ($C_{rm,o}$)		
(1) Total thickness, if 2+ membranes	Thickness (1)	Dia.($C_{rm,o}/\pi$)
Average:		

Filter Paper: Top + Bottom: [X] Yes ; [ ] No
Filter Strips: [ ] Yes ; [X] No Number =
Type of Filter Strips: [ ] Vertical: ¼ in. & Whatman #54
[ ] Sprial: ¼ in. & Whatman #1

Apparatus: Mass Top Cap, M_{tc} = NA g, NA lbf
Mass Displ. System, M_{ds} (cap, dial, piston, etc.) = NA g, NA lbf

Top Cap Attached: [ ] Yes; [X] No; Piston Dia.(in.) [X] ½: [ ] ¾; [ ] Load Cell: [X] External [ ] Internal
Top Cap; Rotation: [ ] Fixed,<1°; [X] Limited,<5°; [ ] Unlimited, >5°
App. with: [ ] Frictionless End Caps; [ ] Lat. Movement Top Cap; [ ] Internal LVDT Jacket

[ ] Photo Taken.
Failure Sketch
ε_a=
20%→

Failure Mode:
[ ] Bulge
[ ] Wedge
[ ] Parabolic
Wedge/Bulge Ht.=
(mm)

NA - Not Applicable
GB - Gage Block
Other Remarks:

Final Visual Classification: Sandy Clay, brown with roots, shell fragments, and gravel

Trimmed / Reconstituted By: DBN Setup By: MNM Take Down By: MNM
Date: 2/4/2004 Date: 2/5/2004 Date: 2/5/2004
Prelim. Calc. By: HP Final Calc. By: HP
[ ] See more detailed sketch on attached sheet. Reviewed By: HP Spot Chk. By: 10 ZD Checked By:

Resilient Modulus Test Data Sheet

AASHTO Designation: T 307-99 (1999)

Project Number: 0401-1484 | Task Number: | Boring/Exploration No.: RB-25A

Project Name: 1-03-344 | Assignment Number: NA | Sample No.: BS-1

Project Engineer: | Penetration/Depth (ft): 1-2.5

Specific Gravity: 2.720 [ ] Measured; [X] Assumed

Soil Description: Sandy Clay, brown with roots, shell fragments, and gravel

Soil Masses	Initial	Final
Tare + Wet Soil (g):	NA	NA
Mass of Wet Soil Used(g):	NA	
After Resilience Testing		
Final Wet Mass (g):	1102.50	
Mass Dried Spec. (g):	937.40	
Water Content (%):	17.61	

Initial Specimen Parameters	
Initial Area (in^2):	6.17
Volume (cm^3):	571.87
Compaction w_c	
Water Content (%):	17.11
Saturation (%):	NA
Wet Density (pcf):	120.08
Dry Density (pcf):	102.54

Specimen Measurements--(mm)			
*Diameter:	Top: 71.20		
	Middle: 71.20	Average:	71.20
	Bottom: 71.20		

Specimen Measurements--(in)			
Net Diameter	NA	Ht. Platens:	NA
Inside Diameter Of Mold	NA		
Membrane Thickness:	NA	X2	

	Initial	Final
Ht. Spec. + Platens:	NA	NA
Specimen height:	5.65	NA

*Total of specimen diameter plus twice the membrane thickness.

Cell Pressure (psi)	Nominal S_d (psi)	Load Cell Chart Reading	K_1	Axial Load (lbs)	S_d (psi)	DT Chart Reading	K_1	Recov. Def. mm (in.)	E_r mm/mm (in./in.)	$M_r = S_d/E_r$ (psi)
6	2	11.32151562	1	11.32151562	1.834518783	0.015736238	0.0394	0.000620008	0.000109643	16731.74384
6	4	21.61554414	1	21.61554414	3.502545336	0.032207619	0.0394	0.00126898	0.000224408	15607.92268
6	6	31.3760963	1	31.3760963	5.084128303	0.052690036	0.0394	0.002075987	0.00036712	13848.6668
6	8	41.42109962	1	41.42109962	6.711803244	0.075617284	0.0394	0.002979321	0.000526867	12739.08108
6	10	50.87240782	1	50.87240782	8.243276856	0.100663239	0.0394	0.003966132	0.000701376	11753.00566
4	2	11.27913392	1	11.27913392	1.827651326	0.016788929	0.0394	0.000661484	0.000116978	15623.93103
4	4	21.24476076	1	21.24476076	3.442464239	0.035053787	0.0394	0.001381119	0.000244239	14094.65512
4	6	31.02542942	1	31.02542942	5.027306849	0.057694045	0.0394	0.002273145	0.000401986	12506.17105
4	8	41.07565468	1	41.07565468	6.655827944	0.081585263	0.0394	0.003214459	0.000568449	11708.74448
4	10	50.51930918	1	50.51930918	8.186061364	0.107051468	0.0394	0.004217828	0.000745886	10974.94439
2	2	10.5907563	1	10.5907563	1.716107808	0.020224214	0.0394	0.000796834	0.000140913	12178.47404
2	4	20.63385766	1	20.63385766	3.343474559	0.042699822	0.0394	0.001682373	0.000297513	11238.07479
2	6	30.40664312	1	30.40664312	4.927039789	0.066021581	0.0394	0.00260125	0.000460009	10710.75559
2	8	40.15434698	1	40.15434698	6.50654084	0.092178541	0.0394	0.003631835	0.000642259	10130.71948
2	10	49.35794378	1	49.35794378	7.997875726	0.119684082	0.0394	0.004715553	0.000833905	9590.874721

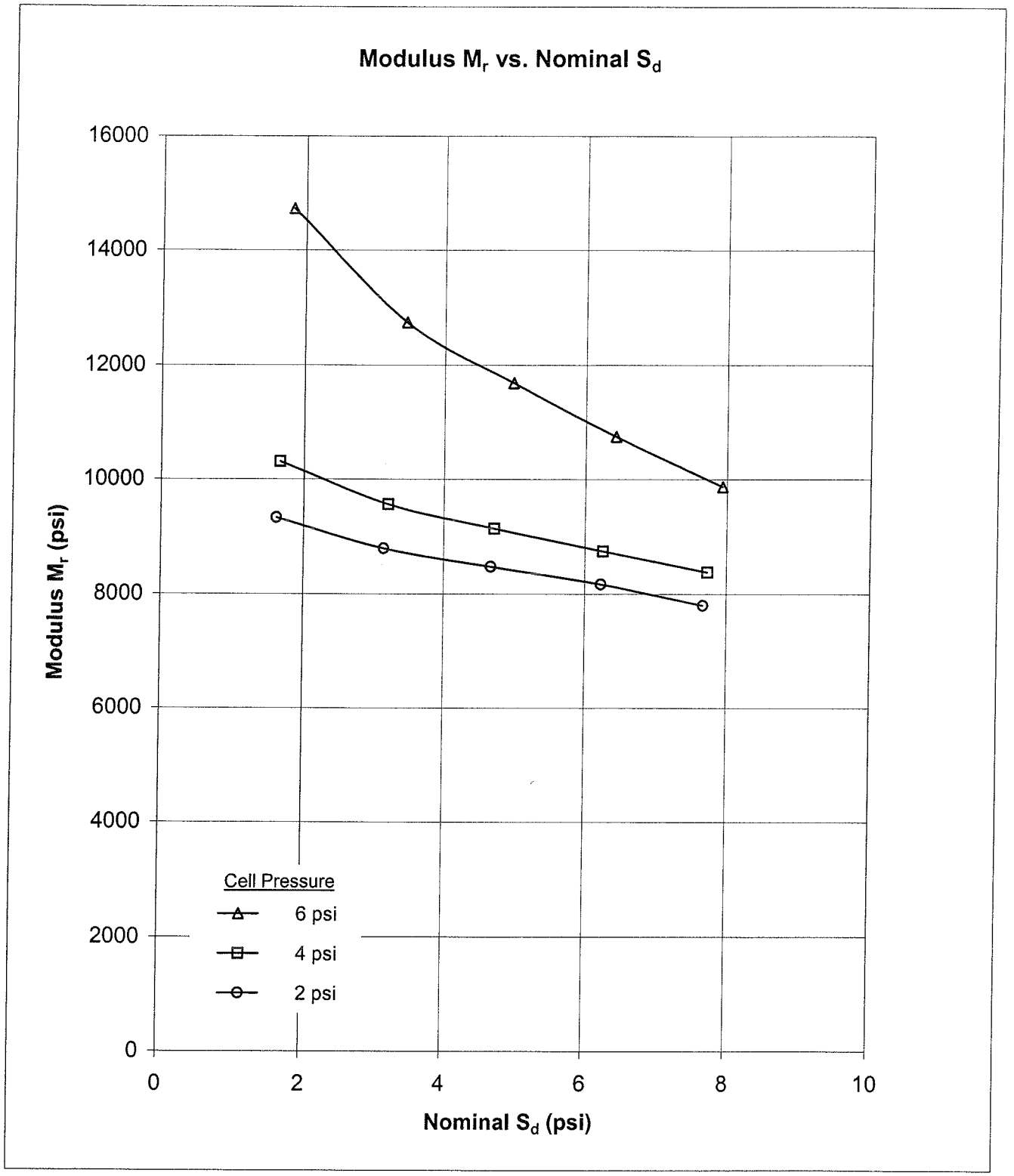
Job Number: 0401-1484
Boring: RB-25A
Sample: BS-1
Depth: 1-2.5

Import Raw Data

Filter Raw Data

SEQUENCE

SEQUENCE		96 Load (lbs)	96 Def # 1 (mm)	96 Def # 2 (mm)	97 Load (lbs)	97 Def # 1 (mm)	97 Def # 2 (mm)	98 Load (lbs)	98 Def # 1 (mm)	98 Def # 2 (mm)	99 Load (lbs)	99 Def # 1 (mm)	99 Def # 2 (mm)	100 Load (lbs)	100 Def # 1 (mm)	100 Def # 2 (mm)	Average Load (lbs)	Average Def # 1 (mm)	Average Def # 2 (mm)	Average Def # 1 & 2 (mm)	Percent Dev. For Def # 1 (%)	Percent Dev. For Def # 2 (%)
1	(MAX)	11.15697271	0.01604032	0.01511299	11.39257723	0.01567584	0.01618022	11.42380765	0.01579737	0.01566374	11.46825613	0.01624292	0.01545721	11.16596438	0.01583785	0.01535392	11.322	0.016	0.016	0.016	1.16%	-1.16%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
2	(MAX)	21.6202756	0.03236431	0.03242922	21.6394483	0.03187823	0.03149968	21.6130563	0.03123015	0.03139645	21.6068878	0.03394401	0.03298002	21.5980527	0.03264785	0.03170627	21.616	0.032	0.032	0.032	0.64%	-0.64%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
3	(MAX)	31.4051987	0.05326539	0.05253393	31.4122991	0.05281985	0.05232734	31.3728332	0.05302232	0.05225855	31.3533966	0.05330587	0.05239618	31.3367539	0.05233377	0.05263716	31.376	0.053	0.052	0.053	0.49%	-0.49%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
4	(MAX)	41.4053246	0.07521963	0.07453209	41.4138541	0.07602978	0.07487631	41.3797438	0.07647532	0.07570261	41.4487688	0.07615125	0.07525504	41.4578068	0.07643479	0.07549602	41.421	0.076	0.075	0.076	0.59%	-0.59%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
5	(MAX)	50.8886681	0.10090041	0.10024828	50.887989	0.10138649	0.10079908	50.8395233	0.10025233	0.10031706	50.8703104	0.10118401	0.10069579	50.8755483	0.10073841	0.10011053	50.872	0.101	0.100	0.101	0.23%	-0.23%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
6	(MAX)	11.33532072	0.016648	0.01628345	11.36570244	0.01733661	0.01710969	11.23827708	0.01656699	0.01621461	11.20685262	0.01681	0.01717853	11.24951676	0.01676947	0.01697194	11.279	0.017	0.017	0.017	0.22%	-0.22%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
7	(MAX)	21.2623454	0.03487569	0.03439146	21.253185	0.03459215	0.03497672	21.1940623	0.037063	0.03666359	21.3305714	0.03532117	0.03439146	21.1836397	0.03414654	0.03411609	21.245	0.035	0.035	0.035	0.42%	-0.42%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
8	(MAX)	30.9690873	0.05755901	0.0573191	31.0152219	0.05764002	0.05797326	31.0496002	0.057235	0.05700928	31.0672247	0.05792355	0.05793881	31.026013	0.05836916	0.05797326	31.025	0.058	0.058	0.058	0.09%	-0.09%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
9	(MAX)	41.0522299	0.08084994	0.08083201	41.1305279	0.0819031	0.08138287	41.0695684	0.08247024	0.08155494	41.0859645	0.08206516	0.08189923	41.0399827	0.08182216	0.08107298	41.076	0.082	0.081	0.082	0.29%	-0.29%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
10	(MAX)	50.5292514	0.1067738	0.10627276	50.5317826	0.1074624	0.10651374	50.5536335	0.10721939	0.10647935	50.5031164	0.10815102	0.10706461	50.478762	0.10802948	0.10654813	50.519	0.108	0.107	0.107	0.44%	-0.44%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
11	(MAX)	10.57370104	0.01984793	0.02010471	10.50303668	0.02009094	0.01948505	10.63208595	0.02102262	0.0207568	10.63909351	0.01903779	0.020206	10.6058643	0.02130616	0.02038014	10.591	0.020	0.020	0.020	0.18%	-0.18%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
12	(MAX)	20.6257906	0.04155916	0.04275697	20.5996016	0.04338192	0.04351431	20.6610263	0.04297685	0.04279136	20.6484797	0.0419237	0.04175859	20.6343901	0.04354399	0.04279137	20.634	0.043	0.043	0.043	-0.05%	0.05%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
13	(MAX)	30.4565062	0.06557924	0.06578791	30.4168247	0.06578177	0.06571907	30.3532811	0.06634885	0.0659256	30.4126315	0.06630832	0.06654531	30.3939721	0.06598431	0.06623543	30.407	0.066	0.066	0.066	-0.03%	0.03%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
14	(MAX)	40.2114634	0.09243464	0.09233028	40.1256277	0.09202963	0.09174502	40.1373013	0.09296126	0.09153848	40.1302544	0.09231317	0.0925368	40.1670881	0.09215111	0.09174502	40.154	0.092	0.092	0.092	0.22%	-0.22%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
15	(MAX)	49.3370989	0.11961425	0.11942345	49.3533802	0.11957371	0.11921686	49.3643321	0.11993825	0.11990541	49.3566567	0.12066733	0.11962998	49.378251	0.11965472	0.11921686	49.358	0.120	0.119	0.120	0.17%	-0.17%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						



Resilient Modulus Test Results

RB-25A_BS-1b

CR 600 W, US 52 to CR 300 N

Compacted Specimen at 95% Optimum Moisture, Optimum Moisture +2%

TRIAXIAL TEST (AASHTO T-307-99): Specimen Setup / Take Down

Project Number: 0401-1484 Test Type: Res Mod Cell No.: 1 File Name: RB-25A_BS-1b
Task No.:
Project Name: 1-03-344
Assig. Remarks: +2% of optimum moisture content Specific Gravity: 2.720 [ ] Meas.; [X] Assumed

[ ] Tube [ ] Field Extruded [ ] Liner [ ] Remolded	[ ] Tamping	[ ] Constant Effort:	Blows/Tamps per Layer = -
Boring No.: RB-25A [X] Reconstituted	[ ] Impact/Rammer	Rammer Wgt.(lbf)=	No. Layers = 5.00
Sample No.: BS-1 Compostite No.:	[ ] Pluviated:	Tamper Force (lbf)=	Drop (in.) = -
Depth (ft): 1-2.5 Specimen No.: b	[ ] Kneading	[ ] Undercompaction: U_{ni} (%) =	Dia. (in.) = -
[ ] Spec. Selection by X-ray; [ ] Geomarine Sample	[X] Std	Ref. Effort =	% Comp. = 95.0 ± Opt. = +2

Water Content (WC);	Initial - Trimming Location			Final, W_{at}
	Top ($W_{o,1}$)	Bottom ($W_{o,2}$)	Sides ($W_{o,3}$)	(see below)
Container No	702			LAB 120
Mass Moist Soil + Cont. (g)	133.15			1320.90
Mass Dry Soil + Container (g)	116.62			1139.06
Mass Container (g)	31.18			201.03
Water Content, $W_{o,n}$ (%)	19.35			19.39
Avg. Initial WC, $W_{o,avg}$ (%)	19.35	Final (W_{at}): [X] Slice ; [ ]		Whole Spec.

[ ] See attached data sheet(s) for additional water contents

SOIL MASSES:	Initial	Final
Moist + Tare (etc.)(g)	1119.40	1120.10
Tare (etc.) (g)	0.00	0.00
Mass Moist Spec., $M_{t,n}$ (g)	1119.40	1120.10
Excess Dry Soil (soil not included in final mass measurement)		
Container No.		
Mass Dry Soil + Cont. (g)		
Mass Container (g)		
Mass Excess Dry Soil, $M_{d,es}$ (g)		0.00

Specimen Dimensions, (mm)

	Height			Dia., X indicates with membrane		
	Initial (H_o)	Final (H_{at})		Initial (D_o)	Final (D_{at})	
GB	127.000	127.000	1 T	71.20	71.20	For
1	16.83	17.00	2 M	71.20	71.30	Wedge
2	16.80	16.83	3 B	71.20	71.30	Failure
3	16.80	16.75	1'T			= d_{max}
4	16.85	16.88	2'M			= d_{min}
5	16.75	16.86	3'B			= Δd
Avg.	143.81	143.86	Avg.	71.20	NA	xxxxx

Measuring Devices:
Pi Tape: [X] Dia
Calipers: [ ] Ht.; [ ] Dia
Dial Comparator: [X] Ht.; [ ] Dia
Remarks:

$A_o = \pi D^2/400$ (cm^2)	39.82
V_o (cm^3)	572.57
$A_{atb,m}=\pi (D^*_{at})^2 /400$ (cm^2)	NA
$A_{atw,m}=(d_{min}-2\Delta d)d_{max}\pi/400$ (cm^2)	NA
$D^*_{at}=(D_T+2D_M+D_B)/4$ (mm)	NA

Estimated Initial Unit Weight

Total, $\gamma_{t,o}$ (lbf/ft^3) 122.05 Dry, $\gamma_{d,o}$ (lbf/ft^3) 102.26

Membrane / Filter Paper / Apparatus

Membrane (mm):	Top	Bottom
Number: = Thickness: [ ] Single; [ ] Double		
Circumference ($C_{rm,o}$)		
(1) Total thickness, if 2+ membranes Average:	Thickness (1)	Dia.($C_{rm,o}/\pi$)

Filter Paper: Top + Bottom: [X] Yes ; [ ] No
Filter Strips: [ ] Yes ; [X] No Number =
Type of Filter Strips: [ ] Vertical: ¼ in. & Whatman #54
[ ] Sprial: ¼ in. & Whatman #1

Apparatus: Mass Top Cap, M_{tc} = NA g, NA lbf
Mass Displ. System, M_{ds} (cap, dial, piston, etc.) = NA g, NA lbf

Top Cap Attached: [ ] Yes; [X] No; Piston Dia.(in.) [X] ½; [ ] ¾; [ ] Load Cell: [X] External [ ] Internal
Top Cap; Rotation: [ ] Fixed,<1°; [X] Limited,<5°; [ ] Unlimited, >5°
App. with: [ ] Frictionless End Caps; [ ] Lat. Movement Top Cap; [ ] Internal LVDT Jacket

[ ] Photo Taken.
Failure Sketch
ε_a=
20%→

Failure Mode:
[ ] Bulge
[ ] Wedge
[ ] Parabolic
Wedge/Bulge Ht.= _____ (mm)

NA - Not Applicable
GB - Gage Block
Other Remarks:

Final Visual Classification: Sandy Clay, brown with roots, shell fragments, and gravel

Trimmed / Reconstituted By: DBN Setup By: MNM Take Down By: MNM
Date: 1/23/2004 Date: 1/27/2004 Date: 1/27/2004
Prelim. Calc. By: HP Final Calc. By: HP
[ ] See more detailed sketch on attached sheet. Reviewed By: HP Spot Chk. By: WHO Checked By: _____

Job Number: 0401-1484
Boring: RB-25A
Sample: BS-1
Depth: 1-2.5

Import Raw Data

Filter Raw Data

SEQUENCE

SEQUENCE		96 Load (lbs)	96 Def # 1 (mm)	96 Def # 2 (mm)	97 Load (lbs)	97 Def # 1 (mm)	97 Def # 2 (mm)	98 Load (lbs)	98 Def # 1 (mm)	98 Def # 2 (mm)	99 Load (lbs)	99 Def # 1 (mm)	99 Def # 2 (mm)	100 Load (lbs)	100 Def # 1 (mm)	100 Def # 2 (mm)	Average Load (lbs)	Average Def # 1 (mm)	Average Def # 2 (mm)	Average Def # 1 & 2 (mm)	Percent Dev. For Def # 1 (%)	Percent Dev. For Def # 2 (%)
1	(MAX)	11.33619836	0.01806569	0.01724738	11.28339194	0.01863277	0.01745391	11.38956193	0.01887578	0.01762611	11.2283059	0.0183087	0.01690311	11.18499792	0.01818723	0.01710963	11.284	0.018	0.017	0.018	3.21%	-3.21%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
2	(MAX)	21.3414745	0.04070848	0.03807503	21.3482172	0.0399794	0.03745538	21.324436	0.04018194	0.03762752	21.3595456	0.03993893	0.03810948	21.4010319	0.04018194	0.03790289	21.355	0.040	0.038	0.039	3.03%	-3.03%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
3	(MAX)	30.6891461	0.0629868	0.05945355	30.7019548	0.06278426	0.05924696	30.7040319	0.06266278	0.05966014	30.6898641	0.06274379	0.05931586	30.7303248	0.0630678	0.05966013	30.703	0.063	0.059	0.061	2.76%	-2.76%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
4	(MAX)	39.6776761	0.08765495	0.08337951	39.648571	0.08874863	0.08393037	39.6617462	0.08895117	0.08399922	39.691932	0.08818155	0.08341396	39.6874723	0.08801949	0.08337957	39.673	0.088	0.084	0.086	2.73%	-2.73%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
5	(MAX)	48.9988119	0.11835849	0.11271042	48.9760177	0.11730534	0.11253827	48.9854165	0.11766988	0.11305469	49.0297569	0.11783191	0.11381203	49.0032495	0.11868256	0.11381203	48.999	0.118	0.113	0.116	2.07%	-2.07%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
6	(MAX)	10.2866957	0.023534	0.02309978	10.2085801	0.023615	0.02278996	10.2855571	0.02422255	0.02327192	10.2376062	0.02389854	0.02261782	10.2166925	0.02260232	0.02179163	10.247	0.024	0.023	0.023	1.86%	-1.86%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
7	(MAX)	19.8063622	0.04933632	0.04740446	19.7805134	0.04905277	0.04785197	19.8265323	0.04852623	0.04675036	19.8153948	0.04929584	0.04719788	19.8359624	0.04889077	0.04816181	19.813	0.049	0.047	0.048	1.60%	-1.60%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
8	(MAX)	29.1088274	0.07477409	0.07291406	29.1425596	0.07538164	0.07281077	29.0790279	0.07558417	0.07312066	29.0972817	0.0756247	0.07315504	29.1679809	0.07570571	0.07287967	29.119	0.075	0.073	0.074	1.64%	-1.64%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
9	(MAX)	38.5381827	0.10482949	0.10124653	38.6408805	0.10474855	0.10079902	38.5842715	0.1040194	0.10024822	38.6452965	0.10458648	0.10172856	38.6459315	0.10511303	0.10086786	38.611	0.105	0.101	0.103	1.79%	-1.79%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
10	(MAX)	47.7431521	0.13492545	0.13023323	47.7652276	0.13419634	0.12902826	47.6986069	0.13561403	0.13112826	47.7967134	0.13516852	0.13071513	47.6599844	0.13516849	0.13012994	47.733	0.135	0.130	0.133	1.80%	-1.80%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
11	(MAX)	9.9205374	0.02531624	0.02447682	9.9905761	0.02551878	0.02430469	9.9169648	0.02572131	0.02451128	10.0279333	0.02499217	0.02471781	9.8813482	0.02507318	0.02371943	9.947	0.025	0.024	0.025	1.97%	-1.97%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
12	(MAX)	19.4504756	0.05221224	0.05039948	19.4382176	0.05290085	0.05139786	19.4619743	0.05261731	0.05043399	19.4398453	0.05233377	0.05060607	19.3970886	0.0517261	0.05033064	19.438	0.052	0.051	0.051	1.67%	-1.67%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
13	(MAX)	28.8277763	0.08089047	0.07814682	28.8624816	0.08097154	0.0770796	28.8566534	0.08044494	0.07738942	28.911534	0.08125502	0.07756156	28.8172474	0.08076894	0.0783878	28.855	0.081	0.078	0.079	1.99%	-1.99%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
14	(MAX)	38.4315833	0.11122948	0.10782194	38.4059001	0.11070287	0.10709893	38.4432307	0.11224211	0.10768426	38.4385603	0.11199909	0.10792524	38.4709173	0.11151302	0.10737443	38.438	0.112	0.108	0.110	1.81%	-1.81%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
15	(MAX)	47.3461515	0.14335072	0.13849545	47.3528125	0.14412033	0.13959705	47.3561653	0.14407981	0.13942492	47.3797481	0.14379626	0.13863313	47.3327917	0.14335072	0.13863314	47.354	0.144	0.139	0.141	1.69%	-1.69%
	(REBOUND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						