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

July 19, 2011

SUBJECT: TR 55 (Renwick Road)
Project BROS-0197(106)
Section 90-16103-01-BR
Will County
Contract No. 83126
Item 092
August 5, 2011 Letting
Addendum (A)

TO PROSPECTIVE BIDDERS:

Due to clarify information necessary to revise the following:

Proposal

1. **Page iv of the Table of Contents.**
2. **GBSP Index/Check Sheet.**
3. **Deleted page 240 of the Special Provisions.**
4. **Added Geotechnical Report.**
5. **Added special provision for Setting Piles in Rock.**

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

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

Very truly yours,

Scott Stitt
Acting Engineer of Design and Environment

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

Revised 7-19-11

GUIDE BRIDGE SPECIAL PROVISION INDEX/CHECK SHEET
Effective as of the: August 5, 2011 Letting

Pg #	√	File Name	Title	Effective	Revised
		GBSP4	Polymer Modified Portland Cement Mortar	June 7, 1994	June 1, 2007
		GBSP11	Permanent Steel Sheet Piling	Dec 15, 1993	Jan 1, 2007
		GBSP12	Drainage System	June 10, 1994	Jan 1, 2007
		GBSP13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Oct 4, 2010
		GBSP14	Jack and Remove Existing Bearings	April 20, 1994	Jan 1, 2007
		GBSP15	Three Sided Precast Concrete Structure	July 12, 1994	Jan 18, 2011
		GBSP16	Jacking Existing Superstructure	Jan 11, 1993	Jan 1, 2007
		GBSP17	Bonded Preformed Joint Seal	July 12, 1994	Jan 1, 2007
		GBSP18	Modular Expansion Joint	May 19, 1994	Jan 1, 2007
		GBSP21	Cleaning and Painting Contact Surface Areas of Existing Steel Structures	June 30, 2003	May 18, 2011
228	X	GBSP22	Cleaning and Painting New Metal Structures	Sept 13, 1994	May 18, 2011
		GBSP25	Cleaning and Painting Existing Steel Structures	Oct 2, 2001	May 18, 2011
		GBSP26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	April 30, 2010
		GBSP28	Deck Slab Repair	May 15, 1995	Jan 18, 2011
		GBSP29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	Jan 18, 2011
		GBSP30	Bridge Deck Latex Concrete Overlay	May 15, 1995	Jan 18, 2011
		GBSP31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	Jan 18, 2011
		GBSP32	Temporary Sheet Piling	Sept 2, 1994	Jan 1, 2007
		GBSP33	Pedestrian Truss Superstructure	Jan 13, 1998	Oct 4, 2010
		GBSP34	Concrete Wearing Surface	June 23, 1994	Jan 12, 2009
		GBSP35	Silicone Bridge Joint Sealer	Aug 1, 1995	Oct 4, 2010
		GBSP36	Surface Preparation and Painting Req. for Weathering Steel	Nov 21, 1997	May 11, 2009
237	X	GBSP37	Underwater Structure Excavation Protection	April 1, 1995	Mar 6, 2009
		GBSP38	Mechanically Stabilized Earth Retaining Walls	Feb 3, 1999	May 18, 2011
		GBSP42	Drilled Soldier Pile Retaining Wall	Sept 20, 2001	May 18, 2011
		GBSP43	Driven Soldier Pile Retaining Wall	Nov 13, 2002	Oct 9, 2009
		GBSP44	Temporary Soil Retention System	Dec 30, 2002	May 11, 2009
		GBSP45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Jan 1, 2007
		GBSP46	Geotextile Retaining Walls	Sept 19, 2003	Oct 9, 2009
		GBSP47	High Performance Concrete Structures	Aug 5, 2002	Jan 1, 2007
		GBSP50	Removal of Existing Non-composite Bridge Decks	June 21, 2004	Jan 1, 2007
238	X	GBSP51	Pipe Underdrain for Structures	May 17, 2000	Jan 22, 2010
239	X	GBSP52	Porous Granular Embankment (Special)	Sept 28, 2005	Nov 14, 2008
		GBSP53	Structural Repair of Concrete	Mar 15, 2006	Jan 22, 2010
		GBSP55	Erection of Curved Steel Structures	June 1, 2007	
~~240~~	~~X~~	~~GBSP56~~	~~Setting Piles in Rock~~	~~Nov 14, 1996~~	~~Jan 1, 2007~~
		GBSP57	Temporary Mechanically Stabilized Earth Retaining Walls	Jan 6, 2003	Oct 4, 2010
		GBSP58	Mechanical Splicers	Sep 21, 1995	May 11, 2009
		GBSP59	Diamond Grinding and Surface Testing Bridge Sections	Dec 6, 2004	July 9, 2008
		GBSP60	Containment and Disposal of Non-Lead Pain Cleaning Residues	Nov 25, 2004	Mar 6, 2009
		GBSP61	Slipform Parapet	June 1, 2007	Jan 12, 2009
		GBSP62	Concrete Deck Beams	June 13, 2008	Oct 9, 2009
		GBSP63	Demolition Plans for Removal of Existing Structures	Sept 5, 2007	
		GBSP64	Segmental Concrete Block Wall	Jan 7, 1999	Oct 4, 2010

Revised 7-19-11

SETTING PILES IN ROCK
Effective: November 14, 1996
Revised: January 1, 2007

This work shall consist of making shaft excavations through soil and rock, setting piles in rock and backfilling the shaft excavation.

The excavations for each pile shall be made by drilling through the overburden soils and into rock to satisfy the diameter and embedment depth in rock as indicated on the plans. All excavated material shall be disposed of by the Contractor.

The actual top of rock will be considered as the point where rock, defined as bedded deposits and conglomerate deposits exhibiting the physical characteristics and difficulty of rock removal as determined by the Engineer, is encountered which cannot be drilled with earth augers and/or underreaming tools configured to be effective in the soils indicated in the contract documents, and requires the use of special rock augers, core barrels, air tools, blasting, or other methods of hand excavation. When the top of rock encountered is above or below the estimated elevation indicated on the plans, the piles shall be cut or spliced per Article 512.05(a) to satisfy the required embedment in rock.

The Contractor shall be responsible for hole stability by using accepted drilling methods and temporary casing where site conditions warrant; no permanent casings or side forms will be allowed. All loose rock, earth, debris and water shall be removed from the hole prior to placing concrete. If the flow of water into the hole is excessive or if pumping operations are likely to cause hole instability, the level of water in the hole shall be allowed to stabilize and the concrete placed by tremie methods according to Article 503.08 of the Standard Specifications.

The bottom of each hole shall be filled with Class SI Concrete to a depth of at least 6 inches (150 mm) and then the piles shall be placed in the hole and properly located. The piles shall be securely braced and held in position prior to and during the placing and curing of the remainder of the Class SI Concrete until test specimens show that a modulus of rupture of 650 psi (4.5 MPa) has been attained. Any operations that might damage the concrete around the piles shall be deferred until the concrete attains the required strength. The hole shall be filled with Class SI Concrete up to at least 6 inches (150 mm) above the top of rock. The remainder of the hole, to the bottom of encasement, footing or abutment, shall be filled with Class SI Concrete or porous granular embankment at the option of the Contractor unless otherwise detailed in the plans.

This work will be paid for at the contract unit price each for SETTING PILES IN ROCK. The Class SI Concrete and any porous granular embankment backfilled around each pile shall not be paid for separately but shall be included in this item. The furnishing of piles is not included in this item but will be paid for elsewhere in this contract.

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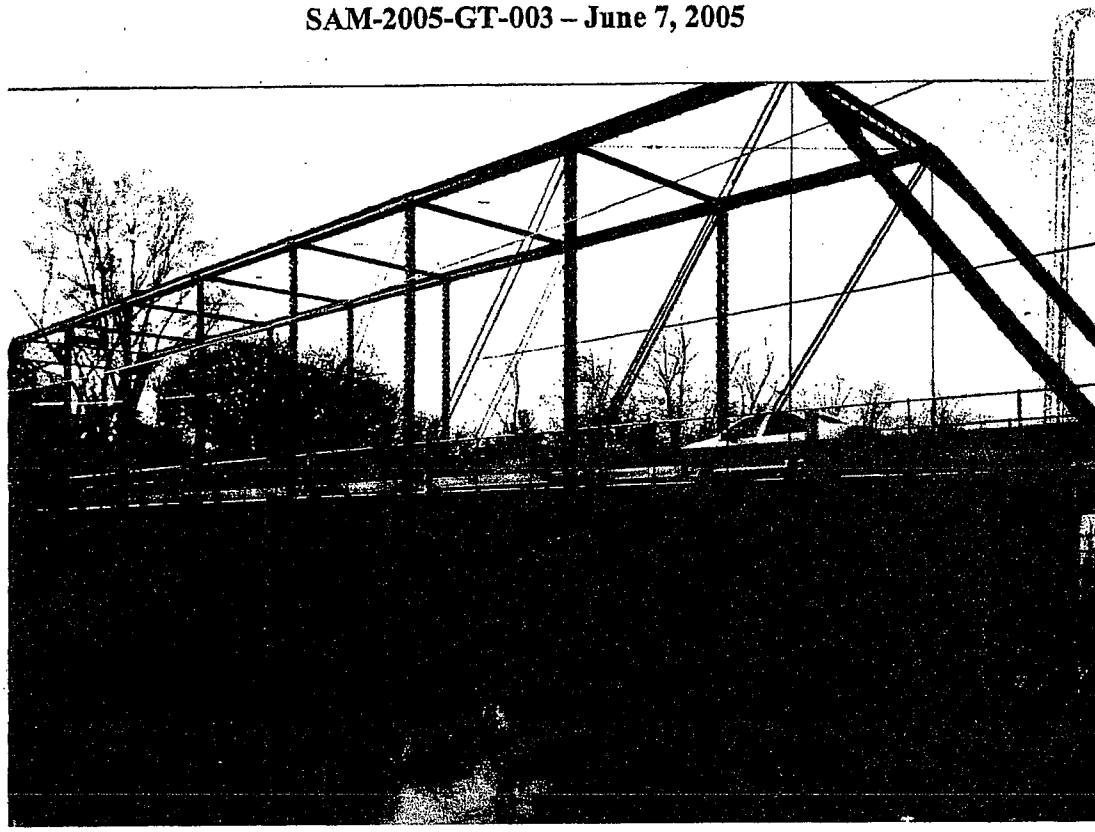
Report of Geotechnical Exploration Services
Renwick Road (T.R. 55) Over Du Page River Project
Section 90-16103-01-BR – Section 20: T36N; R9E
Plainfield Township, Will County, Illinois

SAM-2005-GT-003 – June 7, 2005



Prepared for:

Mr. Roger Wright, P.E.
Huchison Engineering, Inc.
339 West Jefferson
Joliet, Illinois 60435

NAME	✓	INITIALS
RWW		
KDJ		
LRS	✓	LRS
CAY		
BFC		
BRH		
BSL		
JKW		

Prepared By:

S. A. M. Consultants, Inc.
500 East 22nd Street, Lombard, Illinois 60148

Added 7-19-11

S. A. M. Consultants, Inc.

Geotechnical Engineering & Materials Testing

June 7, 2005

Mr. Roger Wright, P.E.
Project Manager
Hutchison Engineering, Inc.
339 West Jefferson
Joliet, Illinois 60435-7413

815-722-5272 - Phone
815-722-6522 - Fax

Subject: Report of Geotechnical Exploration – Renwick Road over DuPage River Project
Section 90-16103-01-BR – Section 20: T36N: R9E – Plainfield Township
Will County, Illinois - Job No. SAM 2005-GT-003

Dear Mr. Wright:

S. A. M. Consultants, Inc. has completed a geotechnical exploration in connection with the design of new structure to carry relocated Renwick Road over the DuPage River in Plainfield Township, Will County, Illinois. The services being presented in this report were performed after our proposal number SAM-GT-2004-008 dated May 26, 2004 was approved by you on January 5, 2005. This letter and its enclosures constitute our report of findings, conclusions and recommendations related to the geotechnical aspects of the project.

Project Understanding

It is our understanding that the project will include the replacement of the existing Renwick Road Bridge over the West Branch DuPage River, along a new "straightened" alignment of Renwick Road, some distance north of the existing one lane metal bridge. This project and its design are being funded by federal HBRRP funds with the remaining portion funded by local funds.

The details of the replacement bridge are being developed at this time and were not made available to us prior to this exploration. Besides the bridge structure itself, approaches to the bridge are expected to involve the construction of up to 13 feet high embankment fills. Additionally, the new alignment of Renwick Road will involve several hundred feet of new roadway away from the existing Renwick Road alignment. Further, portions of Renwick Road will be re-constructed close to its existing alignment and portions of River Road and Drauden Road at their intersections with Renwick
Road will also be improved, widened or re-constructed.

We were provided with the following data, drawings and assistance by Hutchison Engineering, Inc.:

- Plans and profiles along the proposed new roadways and bridge alignments;
- Locations of Bridge Borings surveyed and flagged with station numbers and grade elevations;
- Suggested numbers of borings along the various new roadways and roadway improvements;
- Geotechnical design and construction criteria as per IDOT requirements.

Location & Existing Conditions

Location: The existing Renwick Road Bridge is located in Plainfield Township, Will County, southwest of the Village of Plainfield, which is approximately 35 miles southwest of the City of Chicago, (see project location map provided in the enclosures portions of the report). The bridge carries Renwick Road over the West Branch of the DuPage River, and Renwick Road crosses the EJ&E Railroad tracks, west of the bridge. The project begins at Drauden Road and proceeds easterly to approximately 400 feet East of River Road.

Description of Existing Facility

The existing Renwick Road Bridge is a 153 feet long, single span, steel riveted thru truss and was apparently constructed prior to 1900. The deck consists of steel floor beams and stringers covered with steel grating. The substructure is constructed of dolomite limestone forming the abutments. The bridge structure alignment relative to the DuPage River has a 20 degree skew from perpendicular. The bridge deck clear width is 12 feet – 2 inch allowing only one lane of traffic, to cross the bridge at one time.
The overall width of the bridge, out to out of deck, is approximately 18 feet..00 The bridge is listed in Illinois Historic Bridge Survey and thus is eligible for inclusion on the National Register of Historic places

Description of Proposed Improvements

The following details of the project were provided to us by Hutchison Engineering, Inc.

- Functional Classification: *Renwick Road – TS-3 (Urban)*
- Regulatory Posted Speed Limit: *35 m.p.h.*
- Design Speed: *40 m.p.h.*
- Design Vehicle: *WB-50*
- Bike path: *30 m.p.h.*

Bridge Improvements

The proposed Renwick Road Bridge will be a 7-span, 1057 feet long structure, consisting of a concrete deck on steel girders. The bridge will span both the DuPage River and the EJ&E Railroad. The cross section will include a 30 feet roadway and an 8 feet sidewalk. The substructure design will accommodate horizontal and vertical clearances for a future METRA operation, the proposed DuPage River Bicycle Trail (Park District project), and a future Van Dyke Road Extension (Village Project).

Roadway Improvements

On both sides of the new bridge, Renwick Road will be reconstructed to provide a two lane roadway, 30 feet wide (edge to edge of pavement) with B.6.24 curb and gutter. The total length of the improvement is 3,350 feet (0.63 miles). 1,750 feet of the proposed improvement is on a new location, placing Renwick Road on a continuous east-west route; (as shown on the plan and profile sheets provided).

The existing EJ&E Railroad crossing will be abandoned, as well the section of Renwick Road (to be renamed as Old Renwick Road) between the crossing and the new Renwick Road at approximately station 110+00.

Intersection channelization is proposed at Drauden Road and at River Road. At Drauden/Renwick, Renwick Road will be widened to 42 feet to provide westbound left turn lane. At River/Renwick, both Renwick Road and River Road will be widened to 42 feet to provide left turn lanes on all four approaches.

Other Relevant Details of Improvements

- A minimum clear zone of 2 feet from the face of the curb will be maintained throughout the project.
- In embankment sections, minimum 3:1 side slopes are being proposed.
- The proposed roadway pavement structure will consist of a bituminous concrete surface, a bituminous aggregate mixture base course and a granular sub-base. The details of this design will be completed in the Phase II Design.
- Two new enclosed storm sewer systems are proposed; one on the west side of the DuPage River, the other on the east side. Both main sewers are proposed to be 72" diameter to accommodate the 100 year flood.

Scope of Services

Structure Borings

In accordance with the request from the project engineers and as surveyed and located along the site, we performed a total of six structure borings labeled B-1 though B-6 along the bridge alignment. Table No. 1 on the next page lists the locations, depths and elevations of significant surface and subsurface conditions at the six bridge boring locations.

The locations of Borings B-1 through B-6 are plotted on the "Soil Survey Profile Sheets" provided in the enclosures. Logs of these six borings graphically depicting the nature and physical properties of the materials encountered with depth are also enclosed.

The borings were advanced using hollow stem auger drilling methods and soil samples were routinely obtained at every 2.5 feet intervals of depth. Representative sample of soil were obtained using the split barrel sampling techniques, (ASTM procedure D-1556) which also provided the standard penetration resistance "N" (blows/foot) value of the soil at each sample depth.

Rock formation encountered in four of the six borings was cored using NX core barrel using coring tools with diamond drilling teeth. The collected rock core samples were transported to our laboratory in core boxes specially designed for such sample transport.

Table No. 1 Structure Boring Locations & Elevations

BORING NO.	DEPTH EXPLORED	LOCATION	ELEVATIONS		
			SURFACE	Groundwater	Rock Surface
B-1	22.5'	Sta:115+21:22' S	605.46	587.0	583.46
B-2	16.0'	Sta:116+67: 22'N	600.53	588.0	585.53
B-3	21.0'	Sta:118+52: 22'N	593.52	582.5	583.92
B-4	19.8'	Sta:119+58:22' S	592.55	583.6	584.05
B-5	25.0'	Sta:123+06:22' N	595.50	584.5	580.50
B-6	23.83'	Sta:124+24: 22'S	596.77	590.8	582.94

All collected soil samples were transported to the laboratory in sealed moisture tight containers for analysis and testing. Physical tests including moisture content determination, visual classification, as well as an estimate of their shear strength using a pocket penetrometer were performed on all cohesive soil samples. All tests were generally performed as per the current ASTM standards.

Laboratory tests were performed to determine physical characteristics of the subsurface soils. The tests included determination of unconfined compressive strength, and moisture content determinations for cohesive soils. Logs of borings graphically listing the types and physical properties of the soils encountered in the borings are provided as enclosures to this report

Based on the results of the field drilling and laboratory testing, the sub-surface conditions encountered were analyzed for the appropriate design of support and site preparation techniques for the planned project. Details of our analyses and geotechnical recommendations are provided in the following portions of this report.

Roadway Borings

In accordance with the request from the project engineers, we performed a total of nine roadway borings labeled RB-1 though RB-9 along the roadway portions of the project. Of these, two borings each were made along River Road and Drauden Road Improvements, and the remaining five borings were made for the new and improved portions of Renwick Road alignment. Table No. 2 provided on the next page lists

the locations, depths and elevations of significant surface and subsurface conditions at the nine roadway boring locations.

The locations, description of soil types and laboratory test results of Borings RB-1 through RB-9 are plotted on the "Soil Survey Profile Sheets" provided in the enclosures. Logs of these nine borings graphically depicting the nature and physical properties of the materials encountered with depth are also enclosed.

The borings were advanced using hollow stem auger drilling methods and soil samples were routinely obtained at every 2.5 feet regular intervals of depth. Representative sample of soil were obtained using the split barrel sampling techniques, (ASTM procedure D-1556) which also provided the standard penetration resistance "N" (blows/foot) value of the soil at each sample depth.

All collected samples were transported to the laboratory in sealed moisture tight containers for analysis and testing. Physical tests including moisture content determination, visual classification, as well as an estimate of their shear strength using a pocket penetrometer were performed on all cohesive soil samples. All tests were generally performed as per the current ASTM standards.

Table No. 2 Roadway Boring Locations & Elevations

BORING NO.	*DEPTH EXPLORED*	*LOCATION*	*NAME OF ROAD*	*ELEVATIONS*	
				Surface	*Groundwater*
RB-1	15'	Sta:129+30: 12'S	Renwick	604.10	593.9
RB-2	15'	Sta:14+20: 9'W	River	600.38	592.4
RB-3	15'	Sta:12+50: 26'W	River	600.17	593.2
RB-4	15'	Sta:112+89: 12'S	Renwick	613.20	600.2
RB-5	15'	Sta:109+50: 23'N	Renwick	615.80	------
RB-6	15'	Sta:106+50: 15'S	Renwick	617.50	------
RB-7	15'	Sta:102+11: 22'S	Renwick	620.40	------
RB-8	15'	Sta:34+65: 35'E	Drauden	621.50	614.50
RB-9	15'	Sta:33+50: 25'E	Drauden	619.80	613.80

Based on the results of the field drilling and laboratory testing, the sub-surface conditions encountered were analyzed for the appropriate design of support and site preparation techniques for the planned

project. Details of our analyses and geotechnical recommendations are provided in the following portions of this report.

Subsurface Exploration & Laboratory Testing Program

Bridge Borings

The six borings, B-1 through B-6 for the new Renwick Road Bridge over DuPage River were advanced using hollow stem augers. Throughout the depth of the borings, at 2.5 feet depth intervals, soil samples were obtained with a standard 1.4-inch I.D., 2.0-inch O.D., spilt spoon sampler. The split spoon sampler was first seated 6 inches to penetrate any loose cuttings and then driven an additional foot with blows of a 140 pound hammer falling 30 inches. The number of hammer blows required to drive the sampler each six-inch increment is recorded in the field. The penetration resistance "N-value" is designated as the number of hammer blows required to drive the sampler the final foot and, when properly evaluated, is an index to cohesion for clays and relative density for sands. The split spoon sampling procedure used during this exploration is in general accordance with ASTM Designation D 1586. The unconfined compressive strength of cohesive samples were tested in the field by using a pocket penetrometer and a Rimac Spring Tester.

All six borings were advanced to hard rock whose surface elevation in each boring is listed in Table No. 1 presented in the earlier section of the report. Rock was cored to depths of 10 feet from its surface in four of the six borings (B-3, B-4, B-5 and B-6), using a 2" nominal diameter NX core barrel. The core samples were brought to the laboratory and the recovery percentage and the RQD (Rock Quality Designation) of the samples were determined. These are listed on the logs of borings attached. Additionally, photographs of the rock samples obtained from B-3, B-4, B-5 and B-6, are provided at the back of this report.

Soil samples obtained from the borings were sealed and brought to the laboratory for further examination, classification and testing. The boring logs attached to this report present soil description, consistency evaluations, boring depths, sampling intervals and groundwater conditions.

Laboratory testing for this study included water content tests on all samples. Samples were classified in the laboratory by an engineer based on visual observation, texture, plasticity and test results. Descriptions of the soils shown on the boring logs are in accordance with the enclosed General Notes. Group symbols as per the AASHTO Classification System and ASTM D-3282 specification are shown on boring logs.

Roadway Borings

The roadway borings were performed with a truck-mounted rotary drill rig equipped with a hydraulic head. The locations of nine borings labeled RB-1 through RB-9 were selected jointly by Hutchison Engineering Inc. and S.A.M. Consultants, Inc, in order to obtain conditions for the various portions of the project. The boring locations were further decided to comply with the IDOT requirements.

Continuous flight augers were used to advance the soil survey borings RB-1 through RB-9, with the augers withdrawn frequently to log the soils. Additionally, at 2.5 foot intervals soil samples were

obtained with standard 1.4-inch I.D., 2.0-inch O.D., split spoon sampler. The split spoon sampler was first seated 6 inches to penetrate any loose cuttings and then driven an additional foot with blows of a 140 pound hammer falling 30 inches. The number of hammer blows required to drive the sampler each six inch increment is recorded in the field. The penetration resistance "N-value" is designated as the number of hammer blows required to drive the sampler the final foot and, when properly evaluated, is an index of cohesion for clays and relative density for sands. The split spoon sampling procedure used in this exploration is in general accordance with ASTM designation D-1586. All collected samples were transported to the laboratory in sealed moisture tight containers for analysis and testing.

Laboratory testing for this study included moisture content tests and visual classifications on all samples. Additionally, Atterberg Limits tests (ASTM D-4318); Grain Size Analysis Tests (ASTM D-422) including hydrometer and sieve analyses were conducted on selected soil samples.

Samples were classified in the laboratory by an engineer based on visual observation, texture, plasticity and the results of above mentioned tests. Descriptions of the soils shown on the Soil Profile Sheets and in the Test Result Sheets attached are in accordance with IDOT Triangular Classification Chart. Estimated group symbols for AASHTO Classification System (ASTM D-3282) are also shown on the test result sheets and the soil profile sheets.

Subsurface Conditions – Bridge Borings

The soils encountered within the 1057 feet length of the proposed new bridge as explored by Borings B-1 through B-6, on both sides of the DuPage River generally consisted of sandy clay loam, silty clay loam, sandy loam and sand and gravel overlying weathered limestone formation. As listed on Table No.1 in an earlier section of this report, the surface of rock is at a relatively shallow depth below the current surface of ground between elevations 583.5 and 585.5 on the west side of the river and between elevations 580.5 and 583.0 on the east side of the river.

On the west side of Du Page River, Borings B-1 through B-4 indicated a thin surface layer of either topsoil (4" +/- thick) or some fill (less than 12" thick). Below these surface layers and down to the surface of the rock formation, deposits of clay loam, silty clay loam, sandy clay loam, sandy loam, and sand with gravel were encountered. The cohesive/fine grained soils from these overburden layers, were noted to have the following in place properties in B-1 through B-4: moisture content 15 to 27%; relative strength as determined by a pocket penetrometer 1.5 to 4.5+ tsf; standard penetration resistance 7 to 25 blows per foot; and classification Clay Loam to Silty Clay Loam (Textural); A-4 to A-6 (AASHTO system) and CL- Lean Clay to CL-ML Silty Clay (Unified system).

The non-cohesive soils encountered as the overburden layers above the rock in Borings B-1 through B-4 were noted to exist with the following in-place properties: moisture contents 12 to15%: standard penetration resistance "N" values 13 to 67 blows per foot; and classification Sandy Loam to Sand with Gravel (Textural); A-3 to A-4 (AASHTO system) and SM to SP – Silty Sand to Sand with gravel (AASHTO System).

On the east side of Du Page River, Borings B-5 and B-6 indicated a 12" to 14" thick surface layer of topsoil. Below the topsoil layer, a silty clay loam was encountered, which in turn was noted to be underlain by sand with gravel that continued down to the surface of rock formation at approximately 15 feet depth below the present surface. The silty clay loam from these two borings, were noted to have the following in place properties: moisture content 18 to 23%; relative strength as determined by a pocket penetrometer 0.6 to 3.0 tsf; standard penetration resistance 6 to 13 blows per foot; and classification Silty Clay Loam (Textural); A-4 (AASHTO system) and CL- Lean Clay (Unified system).

The sand and gravel deposits encountered below the silty clay loam in Borings B-5 and B-6, were noted to exist with the following in-place properties: moisture contents 12 to 15%: standard penetration resistance "N" values 35 to 104 blows per foot; and classification Sand with Gravel (Textural); A-3 (AASHTO system).

The hard rock formation encountered in the six borings B-1 through B-6 appears to be a "dolomitic" limestone, which is laminar and broken and has some very thin horizontal inclusions of shale. In the four borings B-3 through B-6 where the rock samples were obtained by coring, recovery of rock was fairly high, (88 to 100%), yet the Rock Quality Designation "RQD" was relatively low (20 to 48%). We have included photographs of the rock cores from these borings in the enclosure portions of the report. Elevations of the surface of the rock formation as encountered in the six borings B-1 through B-6 are listed on Table No. 1 in an earlier section of this report.

Groundwater Conditions

Groundwater was encountered at shallow depths below the current surface grade in the six borings B-1 through B-6. The elevations of the groundwater are also listed in Table No. 1. It should be noted that the groundwater observations provide an approximate indication of the groundwater conditions at the time the borings were made. These levels are generally considered to fluctuate with seasons and precipitation received during any given season and should therefore be considered accordingly in planning any excavation activities.

Roadway Borings - Results of Soil Survey

The following are the results of the soil survey performed through the nine Borings RB-1 through RB-9. These results are categorized into segments depending on the nature of the planned improvements or construction.

Existing Renwick Road towards the east end of project - Stations127+30 through133+04

The soils and subsurface conditions for this extreme east end of the project where the existing Renwick Road is to be improved were explored by Boring RB-1 made at Station 129+30.00: 12.00' Right/South of the centerline. At the surface, 5.5" thick asphalt pavement underlain by a 3.5" gravel base was encountered in RB-1. The soil below the pavement section and down to a depth of 5 feet was a silty clay loam. This soil existed in a moist condition with in place moisture contents varying between 22 and 24%. These soils were classified as Silty Clay Loam (Textural) and A-4 (AASHTO)

The soil Soils below a 5-foot depth and continuing down to the bottom of Boring RB-1 was Sand with Gravel. This soil exists in a wet to saturated condition with in place moisture contents varying between 4 and 13%. This soil was classified as Sand (Textural) and A-3 (AASHTO System). As indicated in Table No.2, groundwater was measured to stabilize at approximate elevation 594.0' in RB-1.

Based on the penetrometer results, moisture content and the plasticity characteristics of the existing subgrade, as well as the relatively high strength of the underlying soils, it is anticipated that scarifing and re-compacting the subgrade soils may provide a stable working platform. However, since these clayey soils are water sensitive, maintaining proper drainage during construction, will be a major factor in keeping the integrity of the subgrade prior to road construction. Additionally, construction traffic can damage the prepared subgrade and thus, a working platform of a compacted fill of 18 inches minimum thickness, may be required in this area. The undercut should be backfilled with approved granular materials, such as Porous Granular Embankment

New Renwick Road Alignment between Station 109+50' and 114+30

The soil survey for this stretch of the new Renwick Road alignment was covered by Borings RB-4 and RB-5. A 9" thick topsoil layer existed at the surface in RB-4. A fill associated with a recent water line installation existed at RB-5 for the top 12 feet.

The fill encountered in RB-5 appeared to exist in a stiff condition with in place moisture contents of 16 to 31% and relative strength as determined by a pocket penetrometer of 4.5+ tsf.

Below the topsoil in RB-4 and the fill in RB-5, clay loams and silty clay loam soils were encountered. This soil existed in a moist condition with in place moisture contents varying between 17 and 25%. These soils were classified as Clay Loam to Silty Clay Loam (Textural) and A-3 to A-4 (AASHTO).

Based on the penetrometer results, moisture content and the plasticity characteristics of the existing subgrade soils, as well as the relatively high strength of the underlying soils, it is anticipated that scarifying and re-compacting the subgrade soils may provide a stable working platform. However, since these clayey soils are water sensitive, maintaining proper drainage during construction, will be a major factor in keeping the integrity of the subgrade prior to road construction. Additionally, construction traffic can damage the prepared subgrade and thus, a working platform of a compacted fill of 18 inches minimum thickness, may be required in this area. The undercut should be backfilled with approved granular materials, such as Porous Granular Embankment

Existing Renwick Road towards the west end of project - Stations100+50' through 109+50'

The soils and subsurface conditions for this west end of the project where the existing Renwick Road is to be improved were explored by Boring RB-6 and RB-7 made at Station 106+50.00: 15.00' South of the centerline and Station 102+11.00': 22.00' South of the centerline, respectively. A 9" thick layer of topsoil exists at the surface in these two borings (made outside the existing roadway).The soils below the topsoil layer and continued to the bottom of RB-6 and RB-7 were deposits of silty clay loam, clay loam and sandy clay loam. . These soils existed with the following in place properties in the two borings: in place

moisture contents between 15 and 28%: relative strength as per a pocket penetrometer 1.0 to 4.5+ tsf and classification Silty Clay Loam, Clay Loam and Sandy Clay Loam (Textural) and A-3 to A-4 (AASHTO).

Based on the penetrometer results, moisture content and the plasticity characteristics of the existing subgrade soils, as well as the relatively high strength of the underlying soils, it is anticipated that scarifying and re-compacting the subgrade soils may provide a stable working platform. However, since these clayey soils are water sensitive, maintaining proper drainage during construction, will be a major factor in keeping the integrity of the subgrade prior to road construction. Additionally, construction traffic can damage the prepared subgrade and thus, a working platform of a compacted fill of 18 inches minimum thickness, may be required in this area. The undercut should be backfilled with approved granular materials, such as Porous Granular Embankment

River Road Improvements at Renwick Intersection

The soil survey for this intersecting Road was covered through Borings RB-2 and RB-3 performed at Station 12+50':26' west and Station 14+20':9' west, respectively. RB-2 was taken through the existing River Road pavement which was noted to consist of 2" of asphalt surface underlain by 4" crushed stone base which in turn was underlain by a 6" layer of sand and gravel. A 12" thick layer of topsoil was indicated at the surface of RB-3 which was drilled within the area of an existing lawn. Below the pavement section in RB-2 and below the topsoil in RB-3, sandy clay loams and silty clay loam soils were encountered. These soils continued down to a 5 feet depth in both borings and existed with the following in place properties: moisture content 8 to 24%; relative strength as per a pocket penetrometer 0.5 to 1.5 tsf and classification Sandy Clay Loam and Silty Clay Loam (Textural) and A-4 (AASHTO).

Below 5 feet and continued down to the bottom of RB-2 and RB-3, Sand with gravel was encountered. This soil existed in a dense to very dense state in the two borings with standard penetration resistance "N" values varying between 21 and 43 blows per foot and were classified as Sand with Gravel (Textural); A-3 (AASHTO system).

Based on the penetrometer results, moisture content and the plasticity characteristics of the existing subgrade soils, as well as the relatively high strength of the underlying soils, it is anticipated that scarifying and re-compacting the subgrade soils may provide a stable working platform. However, since these clayey soils are water sensitive, maintaining proper drainage during construction, will be a major factor in keeping the integrity of the subgrade prior to road construction. Additionally, construction traffic can damage the prepared subgrade and thus, a working platform of a compacted fill of 18 inches minimum thickness, may be required in this area. The undercut should be backfilled with approved granular materials, such as Porous Granular Embankment

Drauden Road Improvements at Renwick Intersection

The soil survey for this intersecting Road was covered through Borings RB-8 and RB-9 performed at Station 34+65':35' east and Station 33+50':25' east, respectively. RB-9 was taken through the existing Drauden Road pavement which was noted to consist of 6" of asphalt pavement underlain by a 3" layer of gravel. A 24" thick layer of topsoil was indicated at the surface of RB-8 which was drilled within the area that was being regraded. Below the pavement section in RB-9 and below the topsoil in RB-8, sandy

clay loam, silty clay loam, silty loam and sandy clay were encountered. These soils continued down to the bottom of these two borings at 15' depth. The following in place properties were measured for the soils in RB-8 and RB-9: moisture content 14 to 27%; relative strength as per a pocket penetrometer 0.5 to 4.5 tsf and classification Sandy Clay Loam and Silty Clay Loam (Textural) and A-3 to A-4 (AASHTO).

Based on the penetrometer results, moisture content and the plasticity characteristics of the existing subgrade soils, as well as the relatively high strength of the underlying soils, it is anticipated that scarifying and re-compacting the subgrade soils may provide a stable working platform. However, since these clayey soils are water sensitive, maintaining proper drainage during construction, will be a major factor in keeping the integrity of the subgrade prior to road construction. Additionally, construction traffic can damage the prepared subgrade and thus, a working platform of a compacted fill of 18 inches minimum thickness, may be required in this area. The undercut should be backfilled with approved granular materials, such as Porous Granular Embankment

Design Parameters and Construction Recommendations for the New Bridge Foundations

Borings B-1 through B-6 were performed at the location of the proposed new bridge structure. Relatively shallow dolomite limestone bedrock was encountered in all of the six borings at relatively shallow depths, at approximate elevation 580.5 to 585.5 feet. Therefore, it is our opinion that driven pile foundation system driven to refusal into the underlying dolomite limestone bedrock is considered the most feasible foundation support for the new bridge structure. Steel H- piles driven to refusal into the underlying dolomite limestone bedrock would develop a very high capacity which is dependent upon the cross sectional area of steel of the pile. For steel pile driven to refusal, a pile capacity on the order of (1.5 x area of steel pile x 9 ksi) could be used. The following table summarizes the estimated pile penetration using steel H- piles.

Bridge Component	Station/Ground Surface Elevation feet	Boring Number	Proposed Pile Cap Elevation feet	Estimated Pile Tip Elevation feet	Estimated Pile Length Feet
W. Abutment	113+70 / 612.5	B-1	607.5	581.5	26.0
Pier 1	115+24 / 608.5	B-1	603.5	581.5	22.0
Pier 2	116+74 / 600.0	B-2	595.0	583.5	11.5
Pier 3	118+24 / 594.0	B-3	589.0	582.0	7.0
Pier 4	119+74 / 593.0	B-4	588.0	581.5	7.5
Pier 5	121+24 / 588.5	B-4 & B-5	583.5	580.0	3.5
Pier 6	122+74 / 596.5	B-5 & B-6	591.5	579.0	12.5
E. Abutment	124+24 / 597.0	B-6	592.0	581.0	11.0

As seen in the above table, bedrock was encountered at much shallower depth at the locations of piers 3, 4 and 5. Therefore, shallow footing foundation and/or straight shaft caissons seated on the underlying bedrock are considered feasible for the support of the bridge foundation at these locations. A design net allowable bearing pressure of 10,000 psf can be used for footings or shallow straight shaft caissons supported on approved dolomite limestone bedrock. However, if driven steel H-piles are considered at these locations, pre- rock coring will be required to allow a minimum pile length of 11 feet.

Since variations may occur in the depth and quality of the bedrock, all piles should be driven until satisfactory driving resistance is developed for the design capacity as evaluated in accordance with an appropriate pile driving formula, or by wave equation analysis . In the event sufficiently high driving resistance is encountered before reaching the anticipated tip elevation, pile driving could be terminated provided it is established that the pile has penetrated the surface of the bedrock. Test piles should be specified on the plans so that the length of piling to be furnished by the contractor can be accurately determined.

It is recommended that the selection of the pile type as well as the driving criterion, the equipment selection etc., should all be in accordance with IDOT "Standard Specification for Road and Bridge Construction" – January 1997. The pile driving as well as the developed pile capacity shall follow the details described in Section 512.10 of the above noted IDOT specification. We further recommend that the pile driving shall be observed and documented by a representative of S.A.M Consultants, Inc., to calculate the developed pile capacity.

Based on the measured properties of the in place soils, and provided foundations are designed and constructed as detailed above, we are estimating that the total and differential settlements of the foundations will be less than 1" and ½" respectively.

Embankment Construction

Based on the current construction plans, it appears that a maximum height of 13 feet of new fill will be required for the construction of the bridge approaches at the abutments. Any additional fills shall be constructed in a safe, well designed and engineered manner. All fill construction shall be in accordance with IDOT specifications.

Considering the height of the anticipated fill and the soil profile below, it is estimated that the settlements under the weight of the new fill, will be small and will be completed expeditiously. It is however advisable to complete all new additional fill 2 to 3 months ahead of the start of pavement construction. The compaction and moisture of new fill shall be monitored by the performance of sufficient numbers of density tests.

Based on the results of the borings and the tests performed on the soil samples collected, the planned embankment side slopes (3 horizontal to 1 vertical) appear safe. If these side slopes are to be maintained for grass or other vegetation growth, flatter slopes that facilitate such maintenance shall be used.

Quality Control during Construction

It is recommended that all excavations, footings, drilled shaft piers and/or driving of piles for the bridge elements, shall be observed and documented by the geotechnical engineer during construction. Any and all soil fill shall be tested for conformance with the density requirements.

REPORT LIMITATIONS

The information, analyses and recommendations presented in this report are based on the construction related information supplied to S. A. M. Consultants Inc., by Hutchison Engineering, Inc., the results of our field drilling, sampling and testing and the ensuing analyses performed by us. If any of the construction related information is different from our current understanding as presented in this report, or if any of the same changes, please inform us so that we can modify our recommendations if necessary. If we are not informed of any changes in the construction related aspects of the project, our firm will not be responsible for any consequences resulting from such change of construction.

The analyses and recommendations presented in this report conform to the current standards of the industry for similar construction. Beyond this, no warranty is provided or implied. We request that after the construction plans are completed, SAM Consultants shall be provided with a set of plans and specifications so that we can confirm that the intent of recommendations provided in this report have been followed and will be implemented.

The recommendations provided in this report are for the exclusive use of Will County Department of Highways, Village of Plainfield and their consultants Hutchison Engineering, Inc. for the specific use in the design and construction of the new replacement ridge for Renwick Road Bridge over DuPage River in Will County, Illinois.

Our firm will be pleased to provide the inspection and related testing services during the construction phase of the project. In the meantime, should you have any questions regarding any portions of this report, please contact our office.

Submitted by:
S. A. M. Consultants, Inc.

Altaf Rahman, Ph.D., P.E. (IL Reg # 062-054163)
Principal Engineer

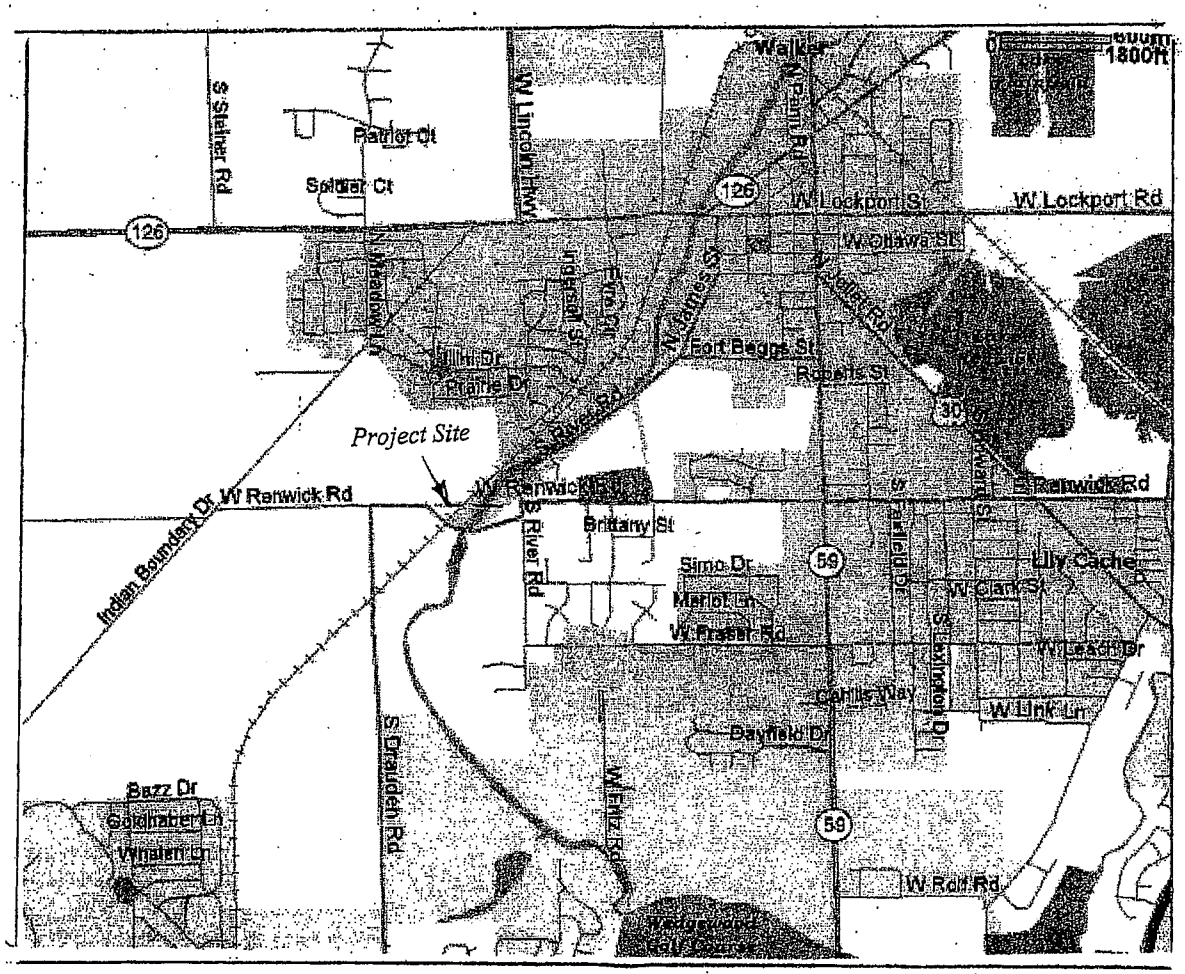
Houssam H. El-Moursi, Ph.D., P.E. (IL Reg # 062-046402)
Principal Engineer

Enclosures: As noted

ENCLOSURES

Site Location Map (1-page)
Bridge Boring Location Plan (1 - page)
General Notes & Soil Classification Chart (2 – pages)
Bridge Boring Logs – B-1 through B-6 (6 - pages)
Roadway Boring Logs -- RB-1 through RB-9 (9 Pages)
BD 508A (1 Page)
BD 507 (3 Pages)
Grain Size Distribution Curves (5 Pages)
Site photographs (2 - pages)

SITE VICINITY MAP



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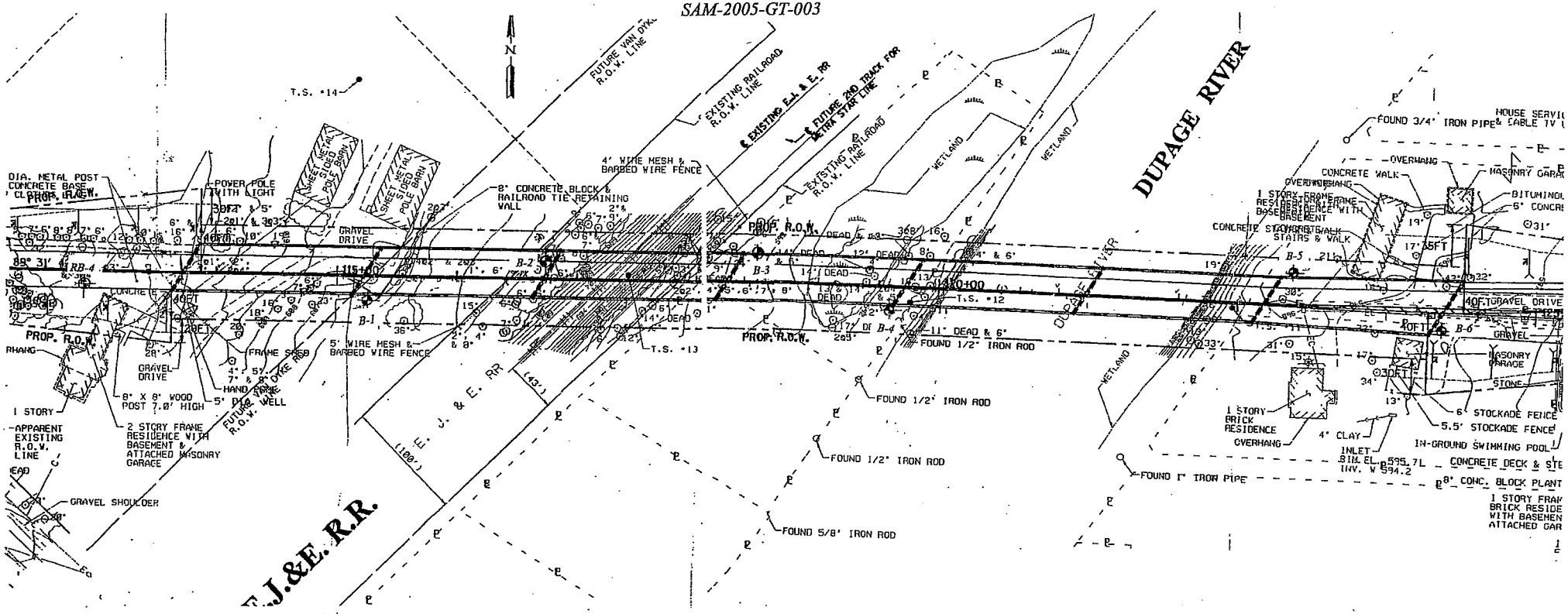
BRIDGE BORING LOCATION PLAN

SAM-2005-GT-003



GENRAL NOTES

DRILLING & SAMPLING SYMBOLS:

SS: Split Spoon – 1 3/8" I.D., 2" O.D., unless otherwise noted
ST: Thin-Walled Tube – 3" O.D., Unless otherwise noted
PA: Power Auger
HA: Hand Auger
DB: Diamond Bit – 4", N, B
AU: Auger Sample
HS: Hollow Stem Auger
PS: Piston Sample
WS: Wash Sample
FT: Fish Tail Bit
RB: Rock Bit
BS: Bulk Sample
PM: Pressuremeter
DC: Dutch Cone
WB: Wash Bore

Standard "N" Penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2 inch O.D. split spoon, except when noted.

WATER LEVEL MEASUREMENT SYMBOLS:

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels is not possible with only short term observations.

DESCRIPTIVE SOIL CLASSIFICATIONS:

Soil Classification is based on the Unified Soil Classification System and ASTM Designations D-2487 and D-2488. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; they are described as: boulders, cobbles; gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve: they are described as: clays, if they are plastic and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse grained soils are defined on the basis of their relative in place density and the fine grained soils on the basis of their consistency. Example: Lean Clay with sand, trace of gravel, stiff (CL); Silty sand, trace of gravel, medium dense (SM).

CONSISTENCY OF FINE GRAINED SOILS:

Unconfined Compressive Strength, Qu, tsf	N-Blows/ft	Consistency
< 0.25	Below 2	Very soft
0.25 - 0.50	2 – 4	Soft
0.50 - 1.0	4 – 8	Medium Stiff
1.0 - 2.0	8 - 15	Stiff
2.0 - 4.0	15 - 30	Very Stiff
4.0 - 8.0	30 – 50	Hard
> 8.0	> 50	Very Hard

RELATIVE DENSITY OF COARSE GRAINED SOILS

N-Blows/ft.	Relative Density
0 – 3	Very Loose
4 – 9	Loose
10 - 29	Medium Dense
30 – 49	Dense
50 – 60	Very Dense
80+	Extremely Dense

RELATIVE PROPORTIONS OF SAND & GRAVEL

Descriptive Term(s) (of Components Also Present in Sample)	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

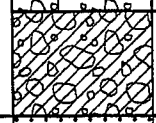
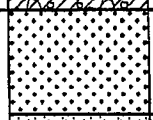
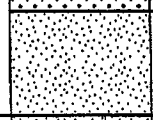
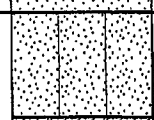
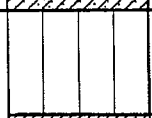
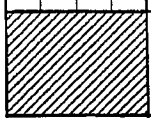
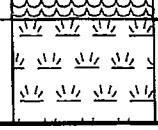
Major Component Of Sample	Size Range
Cobbles	12 in. to 3 in. (300 mm to 75 mm)
Gravel	3 in. to #4 sieve (75 mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75 mm to 0.75 mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) (of Components Also Present in Sample)	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

S. A. M. Consultants, Inc.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

S.A.M. Consultants, Inc.
Geotechnical Engineering & Materials Testing
DBE/MBE Firm
500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER B-1

CLIENT Hutchison Engineering, Inc.
PROJECT NAME Renwick Road Over DuPage River Project
PROJECT NUMBER SAM-2005-GT-003
PROJECT LOCATION Renwick & River Roads, Plainfield, Will County, IL
DATE STARTED 3/16/05 **COMPLETED** 3/16/05
GROUND ELEVATION 605.46 ft Plans **HOLE SIZE** 8" diameter
DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers
GROUND WATER LEVELS:
DRILLING METHOD
▽ **AT TIME OF DRILLING** 18.0 ft / Elev 587.5 ft
LOGGED BY Simon **CHECKED BY** AR
▼ **AT END OF DRILLING** 18.5 ft / Elev 587.0 ft
NOTES Renwick Road - Station 115+21.00; 22.00' Right / South
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		2" Layer of Topsoil: dark brown										
		4" Layer of Gravel										
		CLAY LOAM with traces of gravel: gray; moist; stiff to very stiff; A-4	SS 1	78	2-2-5 (7)	2.0		26				
			SS 2	89	4-6-8 (14)	4.5		16				
5			SS 3	89	4-7-12 (19)	4.5+		16				
			SS 4	100	3-6-9 (15)	4.0		22				
10			SS 5	100	3-6-9 (15)	3.25		23				
		SILTY CLAY LOAM: gray; moist to very moist; stiff; A-6	SS 6	100	3-5-5 (10)	3.5		21				
15			SS 7	100	2-5-7 (12)	3.0		27				
			SS 8	97	3-5-8 (13)	2.75		21				
20			SS 9	94	8-8-60/5"	4.5		16				
		BROKEN LIMESTONE: light gray to white; very hard										
		Bottom of hole at 22.5 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 6/9/05

S.A.M. Consultants, Inc.
Geotechnical Engineering & Materials Testing
DBE/MBE Firm
500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER B-2

CLIENT Hutchison Engineering, Inc.
PROJECT NAME Renwick Road Over DuPage River Project
PROJECT NUMBER SAM-2005-GT-003
PROJECT LOCATION Renwick & River Roads, Plainfield, Will County, IL
DATE STARTED 4/18/05 **COMPLETED** 4/18/05
GROUND ELEVATION 600.53 ft Plans **HOLE SIZE** 8" diameter
DRILLING CONTRACTOR C.S. Drilling/Hollow Stem Augers
GROUND WATER LEVELS:
DRILLING METHOD
▽ **AT TIME OF DRILLING** 12.5 ft / Elev 588.0 ft
LOGGED BY John **CHECKED BY** AR
▼ **AT END OF DRILLING** 11.0 ft / Elev 589.5 ft
NOTES Renwick Road - Station 116+67.00: 22.00' Left / North
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		FILL: SILTY CLAY LOAM: some gravel present; damp										
		CLAY LOAM: brown; moist; stiff to very stiff: A-4	SS 1	94	2-3-5 (8)	1.5						
			SS 2	100	3-4-5 (9)	3.0						
5		SANDY LOAM: brown; very moist; stiff to very stiff; A-4	SS 3	100	3-5-8 (13)	4.5						
			SS 4	94	4-6-9 (15)	4.5						
10		SAND with Gravel: brown: saturated; very dense; A-3	SS 5	94	9-25-24 (49)	----						
			SS 6	78	23-32-37 (69)	----						
15		BROKEN LIMESTONE: light gray to white; hard										
		Bottom of hole at 16.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 6/9/05

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Geotechnical Engineering & Materials Testing
DBE/MBE Firm
500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER B-3

CLIENT Hutchison Engineering, Inc. **PROJECT NAME** Renwick Road Over DuPage River Project

PROJECT NUMBER SAM-2005-GT-003 **PROJECT LOCATION** Renwick & River Roads, Plainfield, Will County, IL

DATE STARTED 4/18/05 **COMPLETED** 4/18/05 **GROUND ELEVATION** 593.52 ft Plans **HOLE SIZE** 8" diameter

DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers & Mud Rotary **GROUND WATER LEVELS:**

DRILLING METHOD ▽ **AT TIME OF DRILLING** 11.0 ft / Elev 582.5 ft

LOGGED BY Adam **CHECKED BY** AR ▼ **AT END OF DRILLING** 5.0 ft / Elev 588.5 ft

NOTES Renwick Road - Station 118+52.00: 22.00' Left / North **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		TOPSOIL - 4" surface layer										
		SANDY CLAY LOAM; brown to gray; moist to wet; soft to medium stiff; A-3	SS 1	78	2-2-3 (5)	0.25						
			SS 2	67	4-7-8 (15)	1.25						
5		SANDY LOAM: gray; moist to wet; stiff to very stiff; A-2	SS 3	67	7-14-11 (25)	----						
		SAND with gravel and broken pieces of limestone; yellow brown; saturated; very dense to hard: A-3	SS 4	44	17-100/3"	-----						
10		BROKEN LIMESTONE with sand & gravel: hard to very hard:										
		LIMESTONE: light gray with dark gray laminations; broken; flakey;	RC 1	90 (21)								
15		SHALE inclusions in Limestone: dark gray; very broken										
		LIMESTONE: brownish gray to light gray; broken & laminar:	RC 2	88 (25)								
20		Less broken Limestone below 19'; light gray to white										
		Bottom of hole at 21.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 6/9/05

S.A.M. Consultants, Inc.
Geotechnical Engineering & Materials Testing
DBE/MBE Firm
500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER B-4

CLIENT Hutchison Engineering, Inc. **PROJECT NAME** Renwick Road Over DuPage River Project

PROJECT NUMBER SAM-2005-GT-003 **PROJECT LOCATION** Renwick & River Roads, Plainfield, Will County, IL

DATE STARTED 4/18/05 **COMPLETED** 4/18/05 **GROUND ELEVATION** 592.55 ft Plans **HOLE SIZE** 8" diameter

DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers & Mud Rotary **GROUND WATER LEVELS:**

DRILLING METHOD ▽ **AT TIME OF DRILLING** 9.0 ft / Elev 583.6 ft

LOGGED BY Adam **CHECKED BY** AR ▼ **AT END OF DRILLING** 3.0 ft / Elev 589.6 ft

NOTES Renwick Road - Station 119.58.00; 22.00' Right / South **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		4" Layer of TOPSOIL & Gravel; dark gray; moist; SANDY CLAY LOAM; gray; wet; soft to very soft; A-4	SS 1	33	2-2-2 (4)	---						
			SS 2	56	0-0-1 (1)	0.25						
5		SANDY LOAM; pieces of rock mixed; gray; saturated; dense to very dense	SS 3	67	1-8-16 (24)	---						
		▽ LIMESTONE: light gray with gray laminations; broken and flakey; hard to very hard;	SS 4	67	50/2"	---						
10			RC 1	95 (27)								
15		SHALE Layer between 14.5' and 15.33' LIMESTONE; light gray to white; less broken;	RC 2	95 (28)								
		Bottom of hole at 19.8 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 6/9/05

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Geotechnical Engineering & Materials Testing
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500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER B-5

CLIENT Hutchison Engineering, Inc.
PROJECT NAME Renwick Road Over DuPage River Project
PROJECT NUMBER SAM-2005-GT-003
PROJECT LOCATION Renwick & River Roads, Plainfield, Will County, IL
DATE STARTED 3/10/05 **COMPLETED** 3/10/05
GROUND ELEVATION 595.50 ft Plans **HOLE SIZE** 8" diameter
DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers & Mud Rotary
GROUND WATER LEVELS:
DRILLING METHOD
▽ **AT TIME OF DRILLING** 11.0 ft / Elev 584.5 ft
LOGGED BY John **CHECKED BY** AR
▼ **AT END OF DRILLING** 5.0 ft / Elev 590.5 ft
NOTES Renwick Road - Station 123+06.00: 22.00' Left / North
AFTER DRILLING —

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		12"layer of TOPSOIL: dark brown w/ roots; moist										
		SILTY CLAY LOAM: with some Silt; brown; moist to wet; A-4	SS 1	50	2-3-4 (7)	1.1						
			SS 2	78	3-3-3 (6)	0.6						
5			ST 3	83		3.0						
			SS 4	94	3-6-7 (13)	2.0						
10		SAND with gravel: gray; pieces of limestone; saturated; dense to very dense; A-3	SS 5	94	10-8-50/4"	----						
15		LIMESTONE: light gray with gray laminations; very hard; laminar separations	RC 1	98 (28)								
20			RC 2	100 (48)								
25												

Bottom of hole at 25.0 feet.

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 6/9/05

S.A.M. Consultants, Inc.
Geotechnical Engineering & Materials Testing
DBE/MBE Firm
500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER B-6

CLIENT Hutchison Engineering, Inc.
PROJECT NAME Renwick Road Over DuPage River Project
PROJECT NUMBER SAM-2005-GT-003
PROJECT LOCATION Renwick & River Roads, Plainfield, Will County, IL
DATE STARTED 3/10/05 COMPLETED 3/10/05
GROUND ELEVATION 596.77 ft Plans HOLE SIZE 8" diameter
DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers & Mud Rotary
GROUND WATER LEVELS:
DRILLING METHOD
AT TIME OF DRILLING 6.0 ft / Elev 590.8 ft
LOGGED BY John CHECKED BY AR
AT END OF DRILLING 5.0 ft / Elev 591.8 ft
NOTES Renwick Road - Station 124+24.00: 22.00' Right / South
AFTER DRILLING —

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		TOPSOIL & Gravel - 14" layer										
		SILTY CLAY LOAM: brown; very moist to wet; medium stiff to stiff: A-4	SS 1	44	3-5-5 (10)	2.0						
			SS 2	78	3-3-4 (7)	0.75						
5		SAND with Gravel: brown; very dense to hard; pieces of stone mixed in; A-3	SS 3	67	9-16-19 (35)	—						
			SS 4	78	9-18-27 (45)	—						
10			SS 5	56	33-44-60 (104)							
		LIMESTONE: broken; light gray with dark gray laminations; hard to very hard.	RC 1	95 (21)								
15												
20			RC 2	95 (20)								
		Bottom of hole at 23.8 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 6/9/05

SOIL TEST DATA

SAM Job Number: SAM-GT-2005-003
Project Title: Renwiek Road Over DuPage River
Site: Renweik and River Roads, Plainfield, Illinois
City or County: Plainfield, (Will County) **client: Hutchison Engineering, Inc**

BORING NUMBER	RB-1	RB-3	RB-6	RB-7	RB-9
Sample Number	1	1	1	1	2
Station	129+30	12+50	106+50	102+11	33+50
Location (ft)	12'S	26' W	15' S	22' S	25' E
Depth (ft)	1.0-2.5	1.0-2.5	1.0-2.5	1.0-2.5	3.5-5.0
HRB Classification & Group Index	A-4	A-4	A-3	A-4	A-5
Grain Size Classification	SILTY CLAY LOAM	SILTY CLAY LOAM	SILTY CLAY LOAM	CLAY LOAM	SILTY LOAM
Gradation-Passing I" Sieve %					
Gradation-Passing ¾" Sieve %					
Gradation-Passing ½" Sieve %	-	-	-	97	-
Gradation-Passing No. 4"sieve %	-	-	-	-	-
Gradation-Passing No. 10" Sieve %	-	-	-	-	-
Gradation-Passing No. 40" Sieve %	92	97	91	86	92
Gradation-Passing No. 100" Sieve %	85	95	85	80	84
Gradation-Passing No. 200" sieve %	80	88	81	76	73
Sand %	20	12	19	24	26
Silt %	51	56	45	46	47
Clay %	30	32	35	32	27
Liquid Limit %	30	28	32	27	22
Plasticity Index %	8	8	10	8	5
Bearing Ratio					
Std-Dry Density AASHTO T99 (pcf)					
Optimum Moisture %					
Unconfined Compressive Strength,tsf	1.0	1.5	1.5	2.0	1.0
Unit Weight, pcf					

BD-508A
Remarks:

S.A.M Consultants, Inc.

SUMMARY REPORT ON PAVEMENT BASE AND SUB-BASE DESIGN

SAM PROJECT NO: SAM-GT-2005-003 **SHEET: 1 of 1**
Project Name: Renwick Road over DuPage River **RENWICK ROAD**
Section: N/A City/County/Plainfield/Will Date: 5-20-05
ADT: Year: Design Period: N/A Class Highway: TS-3(URBAN)
Passenger Car / Day: N/A Trucks SU / Day: N/A Trucks MU/Day: N/A

TENTATIVE PAVEMENT STRUCTURE:

Type Surface Course	**Bituminous Concrete Surface**	**Thickness: N/A**
Type Base Course:	**BAM**	**Thickness: N/A**
Type SUB-Base Material:	**Granular**	**Thickness: N/A**

BORING NUMBER	N/A	RB-7	RB-6	N/A	RB-1
Station to Station	92+58 to 99+00	99+00 to 103+70	103+70 to 109+80	109+80 to 114+30	124+50 to 133+00
Station of Test	N/A	102+11	106+50	N/A	129+30
Drainage Class		Poor	Poor		Poor
Ave.Frost Depth (in)	42	42	42	42	42
Grain Size Classfica.		Clay Loam	Silty Clay Loam	-----	Silty Clay Loam
HRB Class & Gr. Ind		A-4	A-3	----	A-4
Percent Silt		46	45	---	51
Maximum Cut/Fill ft	No Fill or Cut	Less than 1 foot of Fill	Up to 1 foot Cut	Up to 17 feet of fill	UP to 15 feet of fill
Bearing Ratio		Estimated 3 to 4	Estimated 3 to 4	---	Estimated 3 to 4
Remarks					

BD-507

S.A.M Consultants, Inc.

SUMMARY REPORT ON PAVEMENT BASE AND SUB-BASE DESIGN

SAM PROJECT NO: SAM-GT-2005-003 SHEET: 1 of 1
Project Name: Renwick Road over DuPage River DRAUDEN ROAD
Section: N/A City/County/Plainfield/Will Date: 5-20-05
ADT: Year: Design Period: N/A Class Highway: TS-3(URBAN)
Passenger Car / Day: N/A Trucks SU / Day: N/A Trucks MU/Day: N/A

TENTATIVE PAVEMENT STRUCTURE:

Type Surface Course Bituminous Concrete Surface Thickness: N/A
Type Base Course: BAM Thickness: N/A
Type SUB-Base Material: Granular Thickness: N/A

BORING NUMBER	B	B	B	B
Station to Station	26+25 to 35+60			
Station of Test	33+50			
Drainage Class	Poor			
Ave.Frost Depth (in)	42			
Grain Size Classfica.	Silty Loam			
HRB Class & Gr. Ind	A-5			
Percent Silt	47			
Maximum Cut/Fill ft	Up to 2 feet of cut			
Bearing Ratio	Estimated 3 to 4			
Remarks				

BD-507

S.A.M Consultants, Inc.

SUMMARY REPORT ON PAVEMENT BASE AND SUB-BASE DESIGN

SAM PROJECT NO: SAM-GT-2005-003 **SHEET: 1 of 1**
Project Name: Renwick Road over DuPage River **RIVER ROAD**
Section: N/A **City/County/Plainfield/Will** **Date: 5-20-05**
ADT: Year: Design Period: N/A Class Highway: TS-3(URBAN)
Passenger Car / Day: N/A Trucks SU / Day: N/A Trucks MU/Day: N/A

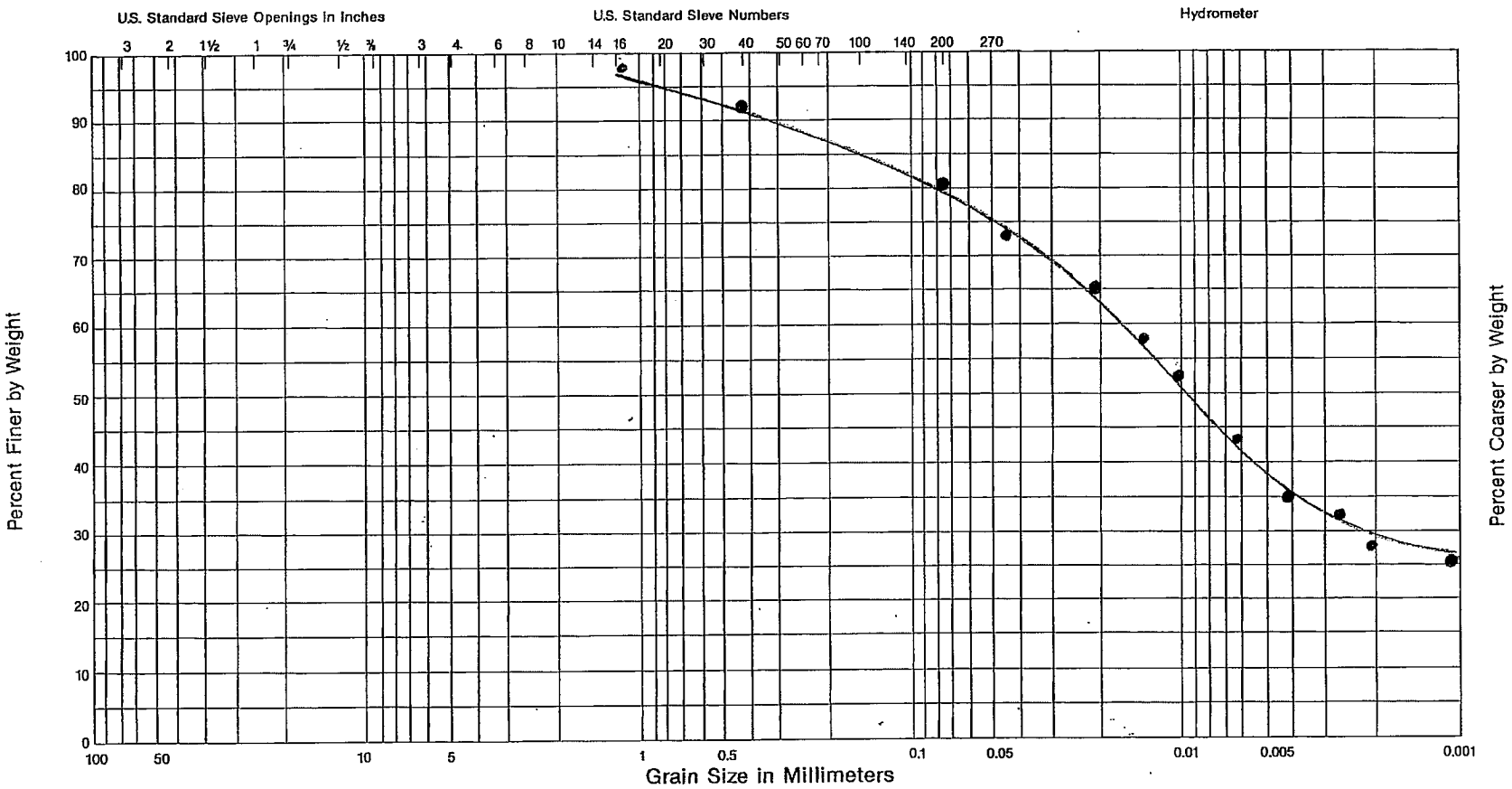
TENTATIVE PAVEMENT STRUCTURE:

Type Surface Course **Bituminous Concrete Surface** **Thickness: N/A**
Type Base Course: **BAM** **Thickness: N/A**
Type SUB-Base Material: Granular **Thickness: N/A**

BORING NUMBER	B	B	B	B
Station to Station	07+50 to 18+50			
Station of Test	12+50			
Drainage Class	Poor			
Ave.Frost Depth (in)	42			
Grain Size Classfica.	Silty Clay Loam			
HRB Class & Gr. Ind	A-4			
Percent Silt	56			
Maximum Cut/Fill ft	Less than 1 feet of cut			
Bearing Ratio	Estimated 3 to 4			
Remarks				

BD-507

S.A.M Consultants, Inc.



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

GRAIN SIZE DISTRIBUTION CURVE

Boring No.	Sample No.	Depth or Elev.	Description	Unified Symbol	Natural WC	LL	PL	PI
RB-1	S-1	1'-2.5'	Silty clay Loam, BRown % silt 51 % clay 30		24%	30	22	8

Project Renwick Road over DuPage River

Renwick & River Roads Plainfield Job No. 2005-GT-003 Date 4-25-05

Renwick Road

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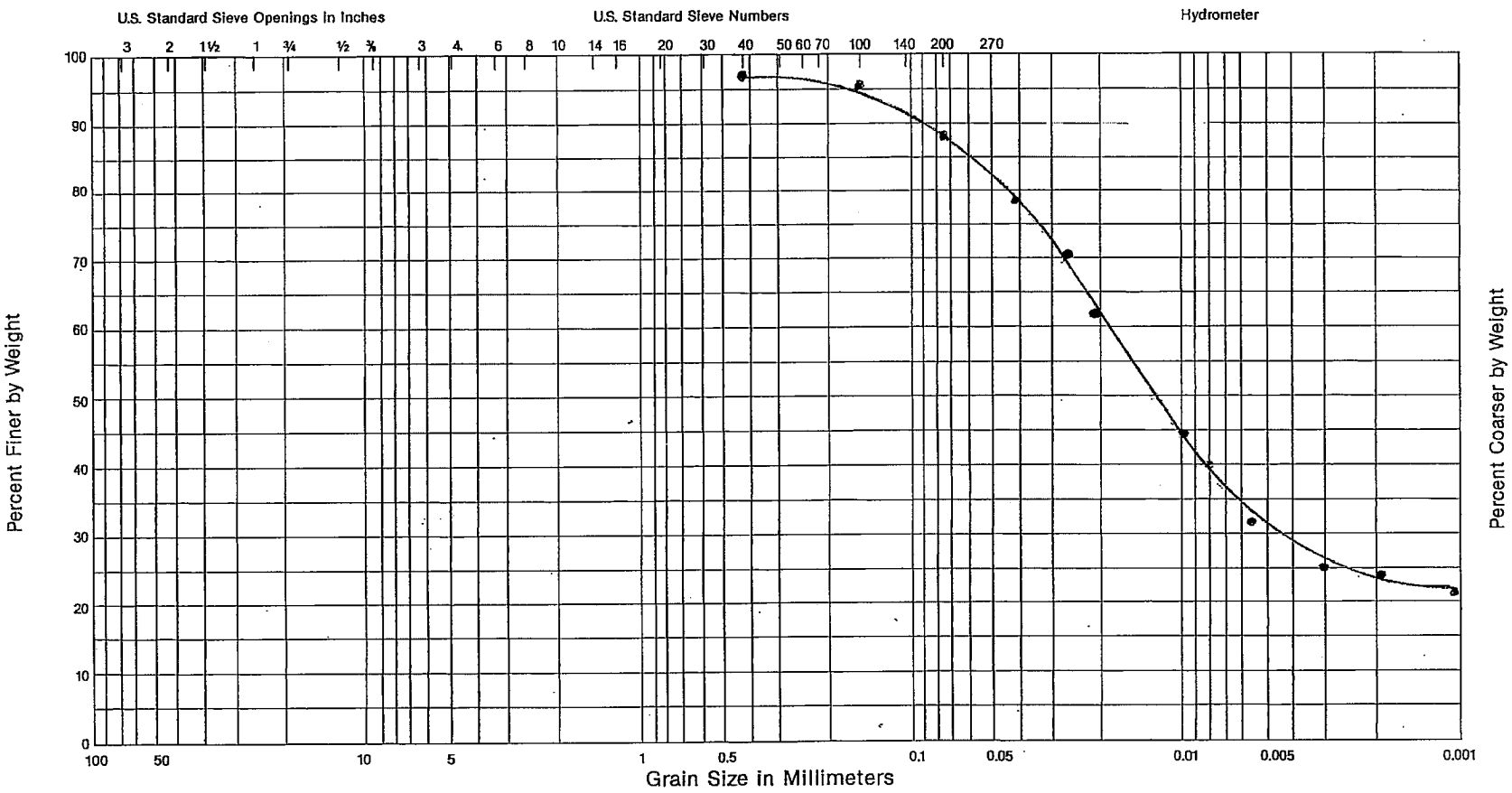


GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

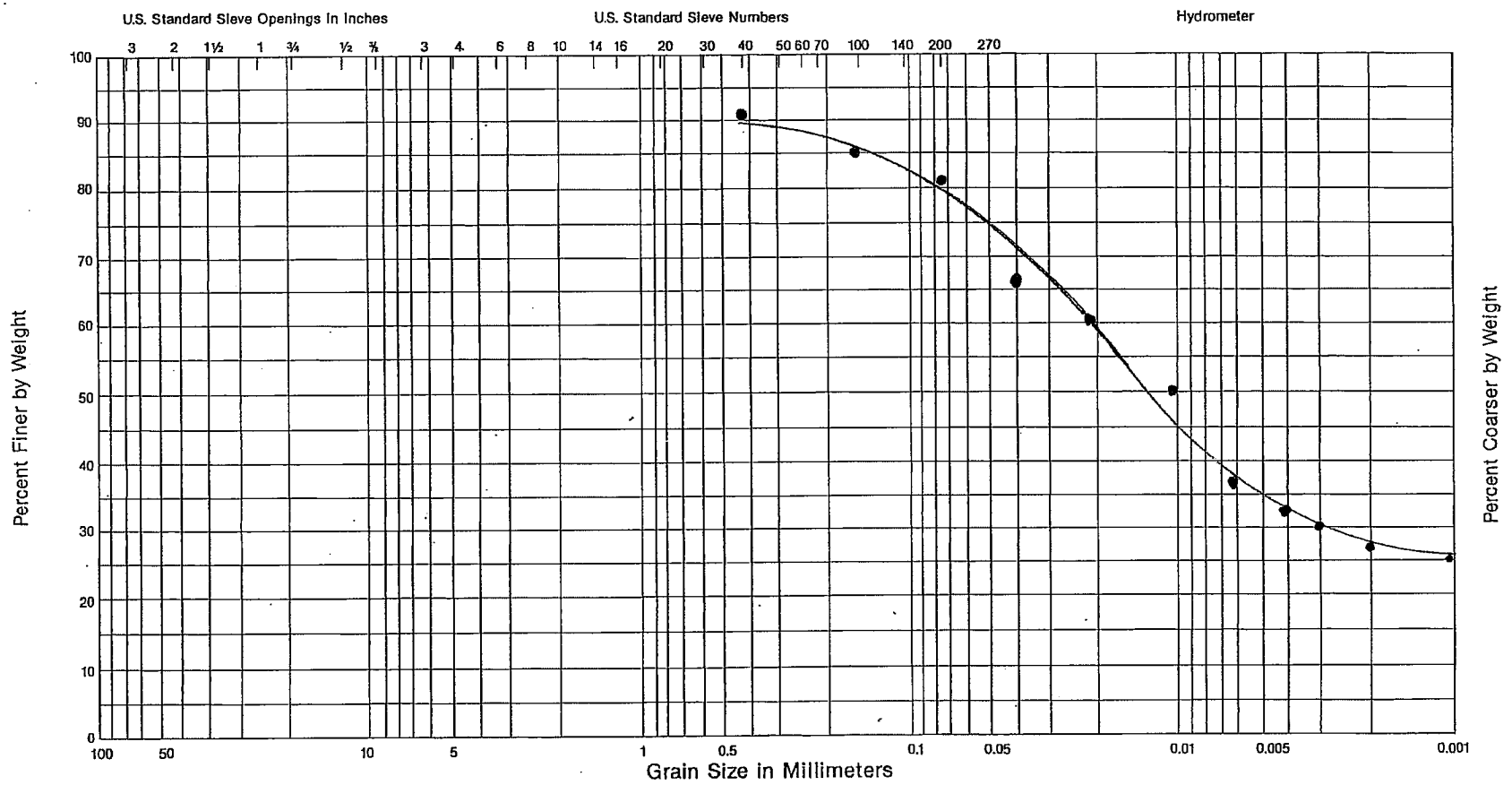
GRAIN SIZE DISTRIBUTION CURVE

Boring No.	Sample No.	Depth or Elev.	Description	Unified Symbol	Natural WC	LL	PL	PI
RB-3	S-1	1'-2.5'	Silty Clay Loam Brown % Silt 56 % Clay 32		23	28	20	8

Project Renwick Road over DuPage River

Renwick & River Roads Plainfield Job No. 2005-GT-003 Date 4-25-05

River Road



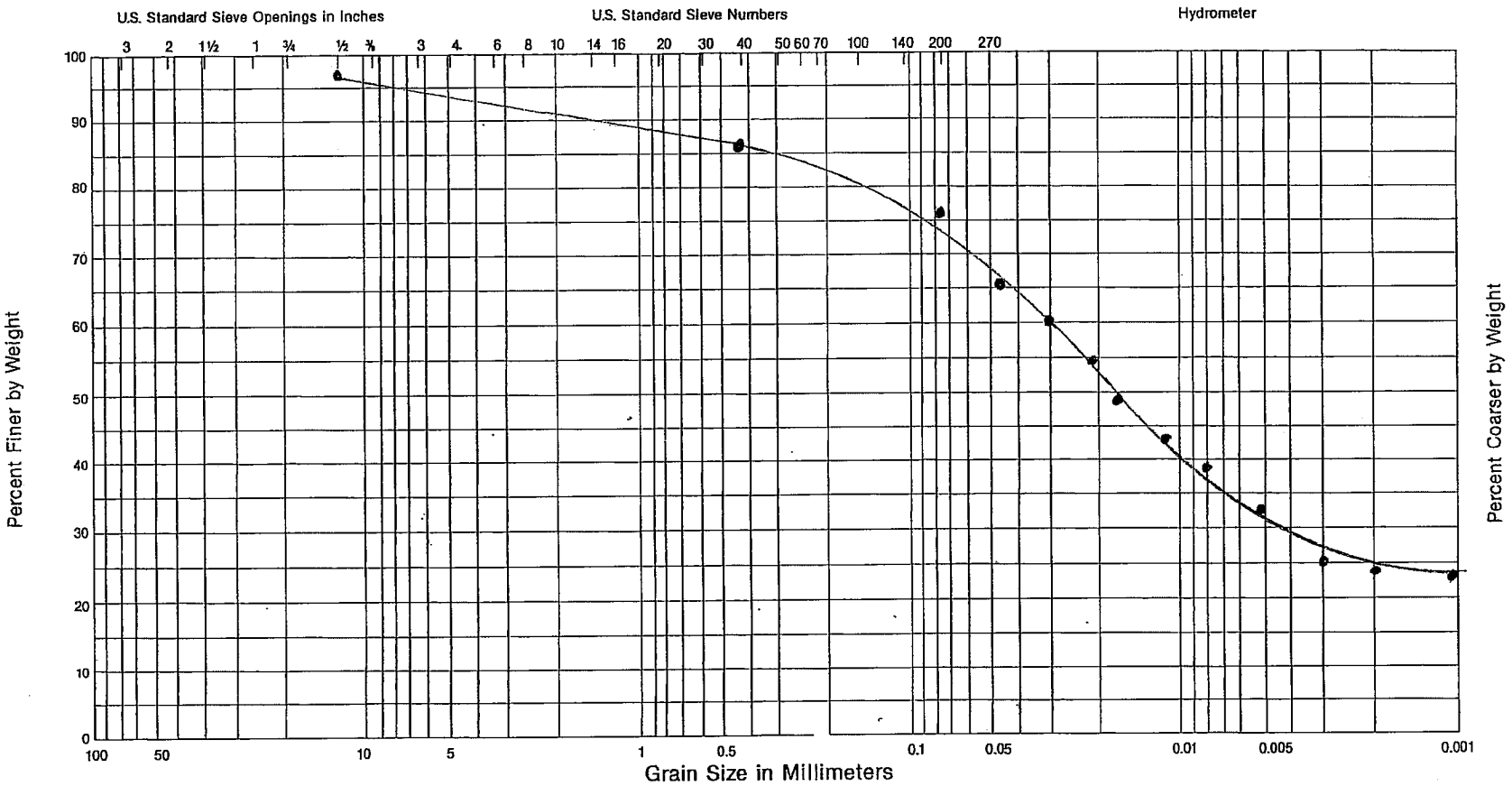
GRAIN SIZE DISTRIBUTION CURVE

Boring No.	Sample No.	Depth or Elev.	Description	Unified Symbol	Natural WC	LL	PL	PI
RB-6	S-1	1'-2.5'	Silty Clay Loam Brown % Silt 45 % Clay 35		28	32	22	10

Project Renwick Road Over DuPage River

Renwick & River Roads Plainfield Job No. 2005 GT 003 Date 4-25-05

Renwick Road



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

GRAIN SIZE DISTRIBUTION CURVE

Boring No.	Sample No.	Depth or Elev.	Description	Unified Symbol	Natural WC	LL	PL	PI
RB-7	S-1	1'-2.5'	Clay Loam, trace gravel Brown % Silt 46 % Clay 32		26	27	19	8

Project Renwick Road over DuPage River

Renwick & River Roads Plainfield Job No. 2005-CT-003 Date 4-25-05

Renwick Road

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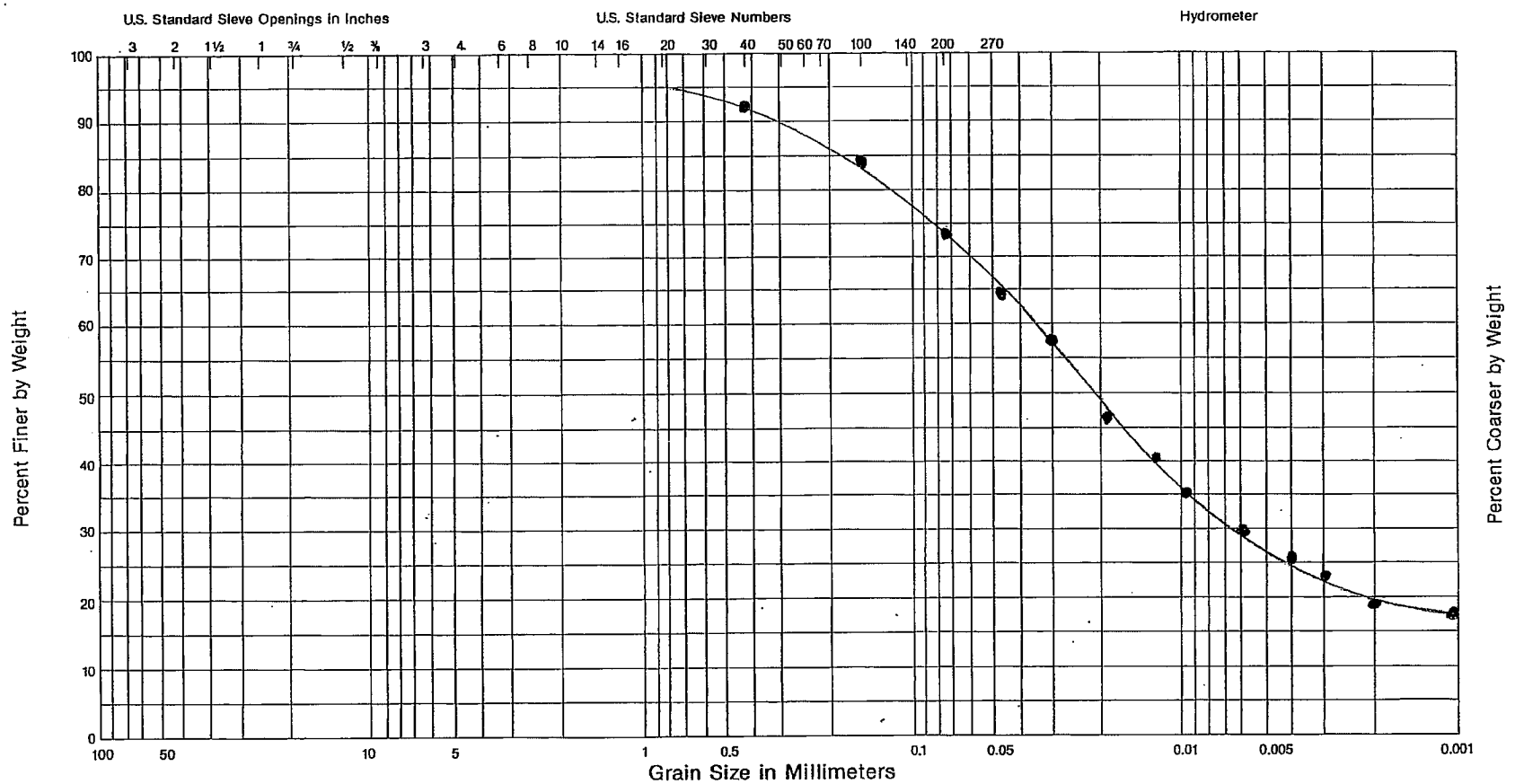

GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

GRAIN SIZE DISTRIBUTION CURVE

Boring No.	Sample No.	Depth or Elev.	Description	Unified Symbol	Natural WC	LL	PL	PI
RB9	S-2	3.5'-5.0'	Silty Loam Brown % Silt=47 % Clay=27			22	17	5

Project Renwick Road over DuPage River

Renwick & River Roads Plainfield Job No. 2005-CT-003 Date 4-25-05

Drauden Road

S.A.M. Consultants, Inc.
Geotechnical Engineering & Materials Testing
DBE/MBE Firm
500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER RB-1

CLIENT Hutchison Engineering, Inc.
PROJECT NAME Renwick Road Over DuPage River Project
PROJECT NUMBER SAM-2005-GT-003
PROJECT LOCATION Renwick & River Roads, Plainfield, Will County, IL
DATE STARTED 3/16/05 **COMPLETED** 3/16/05
GROUND ELEVATION 604.10 ft Palns **HOLE SIZE** 8" diameter
DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers
GROUND WATER LEVELS:
DRILLING METHOD
▽ **AT TIME OF DRILLING** 8.0 ft / Elev 596.1 ft
LOGGED BY Simon **CHECKED BY** AR
▼ **AT END OF DRILLING** 10.2 ft / Elev 593.9 ft
NOTES Renwick Road - Station 129+30.00: 12.00' Right / South
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		ASPHALT - 5.5" thick										
		GRAVEL Sub-Base - 3.5" layer										
		SILTY CLAY LOAM - brown; moist; medium stiff; A-4	SS 1	67	2-4-4 (8)	1.0		24				
			SS 2	22	4-5-5 (10)	0.5		22				
5		SAND: with gravel and some small stones; brown; very moist; medium dense to dense; A-3	SS 3	78	12-17-18 (35)	---		4				
		Wet to staurated at 7 feet	SS 4	67	8-11-12 (23)	---		9				
10			SS 5	67	3-5-7 (12)	---		15				
15			SS 6	89	8-9-12 (21)	---		13				
		Bottom of hole at 15.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 4/22/05

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Geotechnical Engineering & Materials Testing
DBE/MBE Firm
500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER RB-2

CLIENT Hutchison Engineering, Inc. **PROJECT NAME** Renwick Road Over DuPage River Project

PROJECT NUMBER SAM-2005-GT-003 **PROJECT LOCATION** Renwick & River Roads, Plainfield, Will County, IL

DATE STARTED 3/16/05 **COMPLETED** 3/16/05 **GROUND ELEVATION** 600.38 ft Palns **HOLE SIZE** 8" diameter

DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers **GROUND WATER LEVELS:**

DRILLING METHOD ▽ **AT TIME OF DRILLING** 8.0 ft / Elev 592.4 ft

LOGGED BY Simon **CHECKED BY** AR ▼ **AT END OF DRILLING** 6.8 ft / Elev 593.6 ft

NOTES River Road - Station 14+20.00; 9.00' West **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		2" ASPHALT Surface 4" Crushed Stone Base 6" Layer of Sand & Gravel										
		SANDY CLAY LOAM: brown; very moist; medium stiff: A-4	SS 1	78	4-5-7 (12)	1.5		24				
			SS 2	89	8-12-22 (34)	0.5		10				
5		SAND with gravel and stones: some traces of silt; brown; very moistto wet; medium dense to dense: A-3										
			SS 3	78	10-15-17 (32)	---		7				
			SS 4	89	12-15-20 (35)	---		8				
10			SS 5	78	4-16-23 (39)	---		14				
			SS 6	67	6-10-11 (21)	---		9				
15		Bottom of hole at 15.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 4/22/05

(Continued Next Page)

S.A.M. Consultants, Inc.
Geotechnical Engineering & Materials Testing
DBE/MBE Firm
500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER RB-3

CLIENT Hutchison Engineering, Inc. **PROJECT NAME** Renwick Road Over DuPage River Project

PROJECT NUMBER SAM-2005-GT-003 **PROJECT LOCATION** Renwick & River Roads, Plainfield, Will County, IL

DATE STARTED 3/16/05 **COMPLETED** 3/16/05 **GROUND ELEVATION** 600.17 ft Palns **HOLE SIZE** 8" diameter

DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers **GROUND WATER LEVELS:**

DRILLING METHOD ▽ **AT TIME OF DRILLING** 7.0 ft / Elev 593.2 ft

LOGGED BY Simon **CHECKED BY** AR ▼ **AT END OF DRILLING** 6.1 ft / Elev 594.1 ft

NOTES River Road - Station12+50.00: 26.00' West **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		TOPSOIL - 12" layer; dark brown; roots etc.										
		SILTY CLAY LOAM: brown; very moist; softt to stiff: A-4	SS 1	44	2-3-5 (8)	1.5		23				
			SS 2	67	6-10-15 (25)	----		8				
5		SAND with gravel; brown; saturated; medium dense to dense; A-2										
			SS 3	78	8-13-14 (27)	----		8				
			SS 4	89	10-19-24 (43)	----		8				
10												
			SS 5	67	11-16-17 (33)	----		9				
			SS 6	89	14-18-24 (42)	----		25				
15		Bottom of hole at 15.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 4/22/05

S.A.M. Consultants, Inc.
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500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER RB-4

CLIENT Hutchison Engineering, Inc.
PROJECT NAME Renwick Road Over DuPage River Project
PROJECT NUMBER SAM-2005-GT-003
PROJECT LOCATION Renwick & River Roads, Plainfield, Will County, IL
DATE STARTED 3/16/05 **COMPLETED** 3/16/05
GROUND ELEVATION 613.20 ft Pains **HOLE SIZE** 8" diameter
DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers
GROUND WATER LEVELS:
DRILLING METHOD
AT TIME OF DRILLING 11.0 ft / Elev 602.2 ft
LOGGED BY Simon **CHECKED BY** AR
AT END OF DRILLING 13.0 ft / Elev 600.2 ft
NOTES Renwick Road - Station 112.89.00: 12.00' Right / South
AFTER DRILLING —

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		TOPSOIL - 9" surface layer; dark brown										
		CLAY LOAM: brown; very moist; medium stiff; A-4	SS 1	89	3-4-5 (9)	2.0		29				
			SS 2	78	5-6-7 (13)	3.0		18				
5		SILTY CLAY LOAM: trace of gravel: brown; very moist to moist; stiff: A-3	SS 3	83	4-7-10 (17)	4.0		17				
			SS 4	78	5-6-8 (14)	3.5		18				
10		More Clay at 14 feet	SS 5	89	4-6-8 (14)	3.0		19				
			SS 6	89	9-10-14 (24)	----		24				
15		Bottom of hole at 15.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 4/22/05

S.A.M. Consultants, Inc.
Geotechnical Engineering & Materials Testing
DBE/MBE Firm
500 East 22nd Street
Lombard, IL 60148
Telephone: 630-424-1200
Fax: 630-424-1265

BORING NUMBER RB-5

CLIENT Hutchison Engineering, Inc. **PROJECT NAME** Renwick Road Over DuPage River Project

PROJECT NUMBER SAM-2005-GT-003 **PROJECT LOCATION** Renwick & River Roads, Plainfield, Will County, IL

DATE STARTED 3/17/05 **COMPLETED** 3/17/05 **GROUND ELEVATION** 615.80 ft Plans **HOLE SIZE** 8" diameter

DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers **GROUND WATER LEVELS:**

DRILLING METHOD _____ **AT TIME OF DRILLING** None

LOGGED BY Simon **CHECKED BY** AR **AT END OF DRILLING** None

NOTES Renwick Road - Station 109+50.00: 23' Left /North **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		FILL: associated with recent sanitary sewer installation: silty clay loam with traces of gravel: brown with gray pockets; very moist to moist										
			SS 1	67	1-2-6 (8)	2.0		31				
			SS 2	89	3-6-7 (13)	4.5+		16				
5			SS 3	78	4-6-8 (14)	4.5+		17				
			SS 4	78	4-6-10 (16)	4.5+		18				
10			SS 5	67	4-6-8 (14)	4.5+		20				
		CLAY LOAM:Gray brown to gray; moistto very moist; medium stiff: A-4	SS 6	89	2-2-4 (6)	1.0		25				
15		Bottom of hole at 15.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 6/9/05

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Fax: 630-424-1265

BORING NUMBER RB-6

CLIENT Hutchison Engineering, Inc.
PROJECT NAME Renwick Road Over DuPage River Project
PROJECT NUMBER SAM-2005-GT-003
PROJECT LOCATION Renwick & River Roads, Plainfield, Will County, IL
DATE STARTED 3/17/05 **COMPLETED** 3/17/05
GROUND ELEVATION 617.50 ft Palns **HOLE SIZE** 8" diameter
DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers
GROUND WATER LEVELS:
DRILLING METHOD
AT TIME OF DRILLING None
LOGGED BY Simon **CHECKED BY** AR
AT END OF DRILLING None
NOTES Renwick Road - Station 106+50: 15.00' Right /(South
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		TOPSOIL - 9" thick layer; dark brown; very moist										
		SILTY CLAY LOAM: brown to gray; very moist; medium stiff: A-3	SS 1	67	2-2-4 (6)	1.5		28				
			SS 2	89	1-2-4 (6)	1.0		20				
5		Some gravel mixed in clayat 7'	SS 3	78	3-3-4 (7)	3.0		22				
			SS 4	100	3-4-8 (12)	2.5		20				
10		CLAY LOAM: gray; very moist; stiff; A-4	SS 5	89	5-8-12 (20)	4.5+		19				
			SS 6	100	23-8-10 (18)	1.0		20				
15		Bottom of hole at 15.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 4/22/05

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Fax: 630-424-1265

BORING NUMBER RB-7

CLIENT Hutchison Engineering, Inc.
PROJECT NAME Renwick Road Over DuPage River Project
PROJECT NUMBER SAM-2005-GT-003
PROJECT LOCATION Renwick & River Roads, Plainfield, Will County, IL
DATE STARTED 3/17/05 **COMPLETED** 3/17/05
GROUND ELEVATION 620.40 ft Palns **HOLE SIZE** 8" diameter
DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers
GROUND WATER LEVELS:
DRILLING METHOD
AT TIME OF DRILLING None
LOGGED BY Simon **CHECKED BY** AR
AT END OF DRILLING None
NOTES Renwick Road - Station 102+11.00: 22.00' Right / South
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		TOPSOIL: 9" surface layer: dark brown										
		CLAY LOAM: with traces of gravel; brown; moist; medium stiff to stiff: A-4	SS 1	78	2-3-4 (7)	2.0		26				
			SS 2	78	6-10-11 (21)	4.5+		17				
5			SS 3	89	4-5-9 (14)	4.0		18				
			SS 4	100	5-8-10 (18)	4.5		17				
10		SANDY CLAY LOAM: gray: moist: stiff: A-3	SS 5	100	3-5-10 (15)	2.0		16				
			SS 6	89	3-6-9 (15)	3.5		15				
15		Bottom of hole at 15.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 4/22/05

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BORING NUMBER RB-8

CLIENT Hutchison Engineering, Inc.
PROJECT NAME Renwick Road Over DuPage River Project
PROJECT NUMBER SAM-2005-GT-003
PROJECT LOCATION Renwick & River Roads, Plainfield, Will County, IL
DATE STARTED 3/17/05 **COMPLETED** 3/17/05
GROUND ELEVATION 621.50 ft Palns **HOLE SIZE** 8" diameter
DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers
GROUND WATER LEVELS:
DRILLING METHOD
▽ **AT TIME OF DRILLING** 7.0 ft / Elev 614.5 ft
LOGGED BY Simon **CHECKED BY** AR
AT END OF DRILLING None
NOTES Drauden Road - Station 34+65.00: 35' East
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		TOPSOIL: with trace of gravel: 24" layer possibly placed at this location during land improvements in progress										
			SS 1	67	2-3-4 (7)	1.25		33				
		SANDY CLAY LOAM: brown: seams of sand anf gravel: moist: medium stiff: A-3										
			SS 2	56	2-4-5 (9)	1.5		16				
5												
			SS 3	56	4-4-3 (7)	4.0		18				
		SAND: with gravel: gray to brown; saturated; loose to medium dense: A-2										
		SILTY CLAY LOAM: brown; moist; stiff; A-4										
			SS 4	100	5-7-10 (17)	4.5+		16				
10												
			SS 5	100	5-7-10 (17)	4.0		15				
			SS 6	89	3-6-7 (13)	2.5		15				
15		Bottom of hole at 15.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 4/22/05

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Fax: 630-424-1265

BORING NUMBER RB-9

CLIENT Hutchison Engineering, Inc.
PROJECT NAME Renwick Road Over DuPage River Project
PROJECT NUMBER SAM-2005-GT-003
PROJECT LOCATION Renwick & River Roads, Plainfield, Will County, IL
DATE STARTED 3/17/05 **COMPLETED** 3/17/05
GROUND ELEVATION 619.80 ft Palns **HOLE SIZE** 8" diameter
DRILLING CONTRACTOR C.S. Drilling / Hollow Stem Augers
GROUND WATER LEVELS:
DRILLING METHOD
▽ **AT TIME OF DRILLING** 6.0 ft / Elev 613.8 ft
LOGGED BY Simon **CHECKED BY** AR
AT END OF DRILLING None
NOTES Drauden Road - Station 33+50.00: 25' East
AFTER DRILLING —

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Aspahalt Pavement 6" thick										
		GRAVEL base 3" layer below asphalt										
		CLAY with trace of gravel: black; very moist; medium stiff	SS 1	78	2-3-3 (6)	1.0		25				
		SILTY LOAM: brown: wet; medium stiff; A-5	SS 2	78	1-2-2 (4)	0.5		27				
5		▽ SANDY CLAY: gravelly; brown: moist; stiff: A-3	SS 3	89	4-5-6 (11)	—		14				
			SS 4	89	4-5-10 (15)	4.0		17				
10			SS 5	100	5-7-10 (17)	3.5		20				
			SS 6	100	5-7-11 (18)	4.5+		18				
15		Bottom of hole at 15.0 feet.										

GEOTECH BH COLUMNS 2005003-RENWICK ROAD BRIDGE IMPROVEMENT.GPJ GINT US LAB.GDT 4/22/05

Renwick Road Over DuPage River Project, Plainfield Township, Will County, Illinois

Job No: SAM-2005-GT-003 March/April 2005

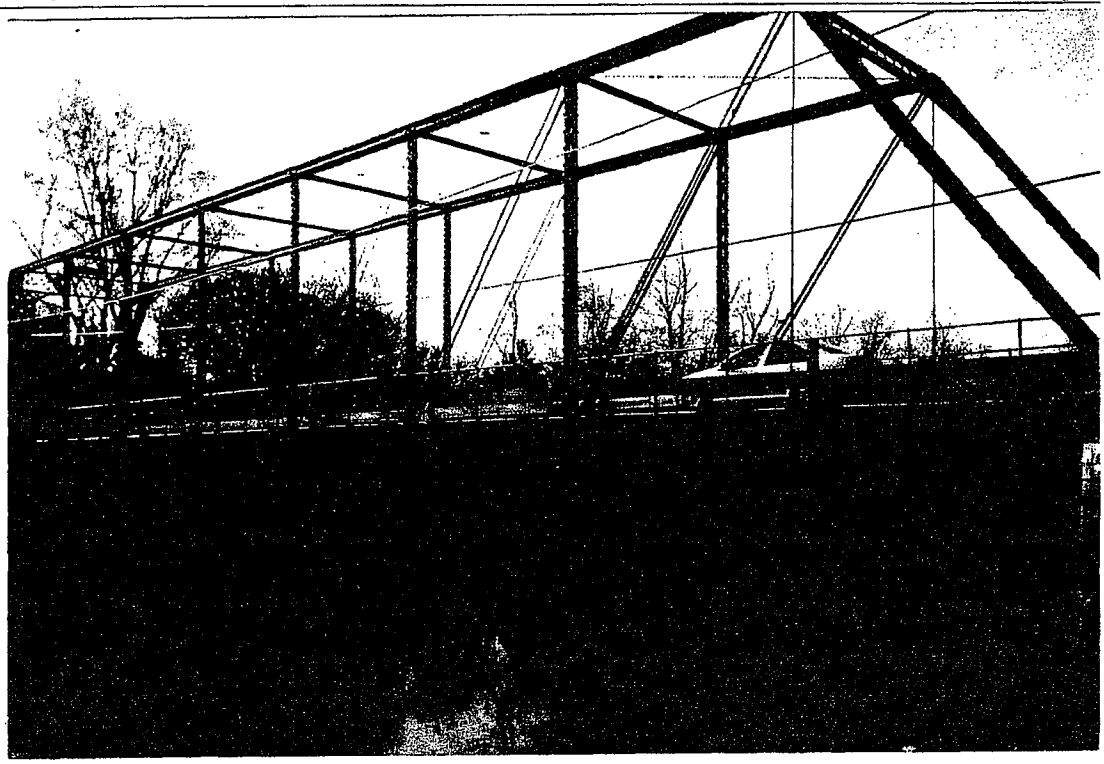

Photo No. 1 – Existing Single Lane Bridge that will be replaced and later used for Bike Trail Bridge

Photo No. 2 – View of DuPage River at the Proposed new Bridge alignment – looking west to east

Renwick Road Over DuPage River Project, Plainfield Township, Will County, Illinois

Job No: SAM-2005-GT-003 March/April, 2005

Photo No. 3 - Rig being moved on grassed areas to reach B-4 after planks were placed along its path

Photo No. 4 – View of Rig drilling B-4 – looking from northwest to southeast

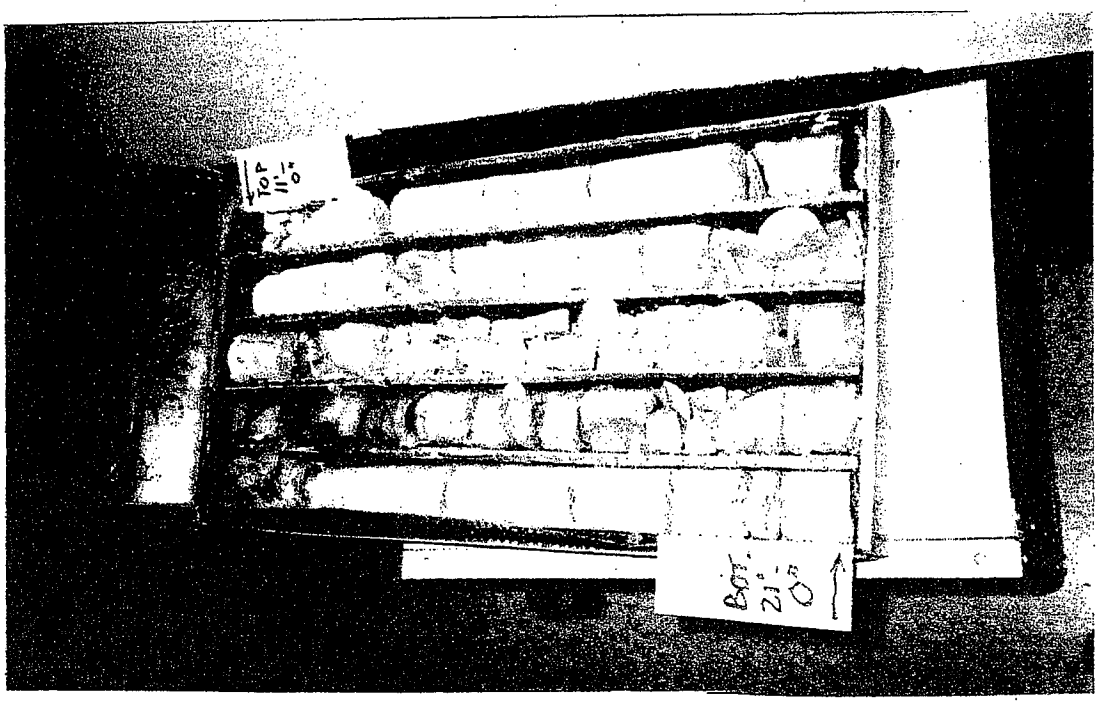

Photo No. 5 - View of rock core samples obtained from Boring B-3

Photo No. 6 - View of rock core samples obtained from Boring B-4

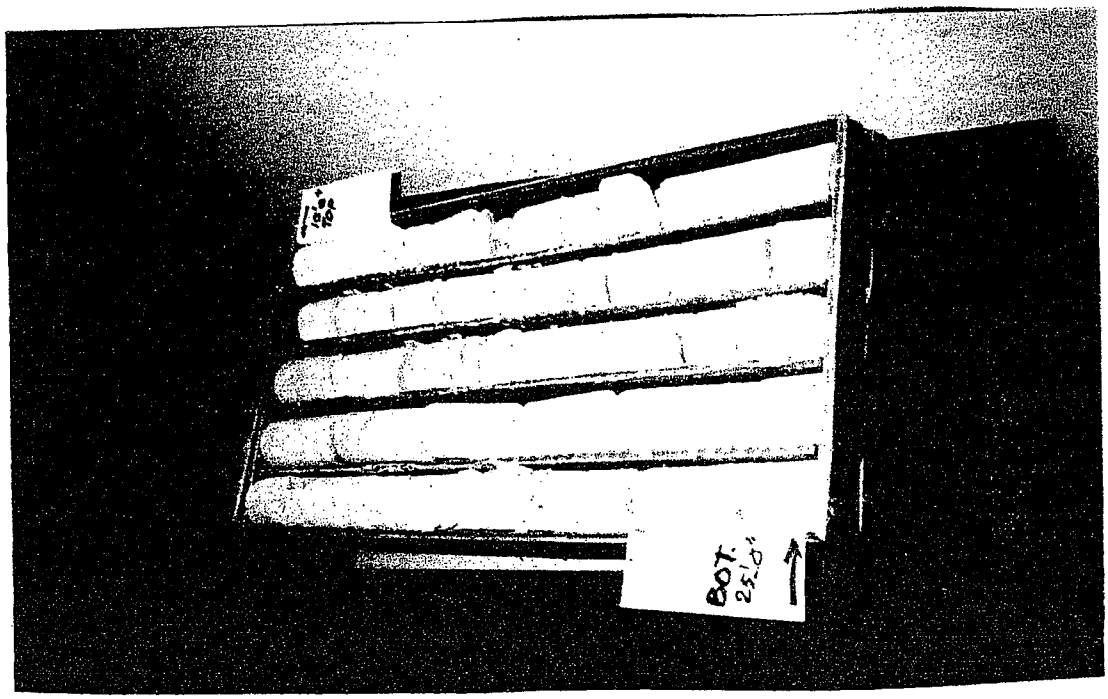

Photo No. 7 - View of rock core samples obtained from Boring B-5

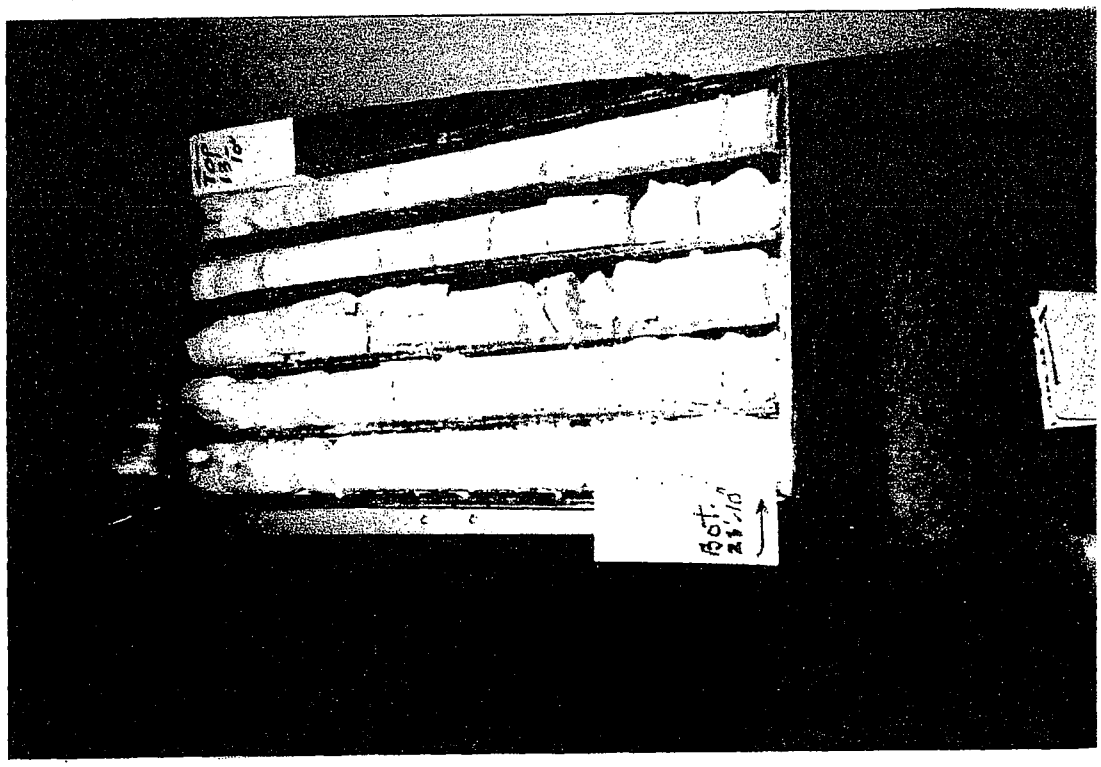

Photo No. 8 - View of rock core samples obtained from Boring B-6

T.R. 55 (Renwick Road)
Section 90-16103-01-BR
Will County
Contract 83126

SETTING PILES IN ROCK

This work shall consist of making shaft excavations through soil and rock, setting piles in rock and backfilling the shaft excavation.

The excavations for each pile shall be made by drilling through the overburden soils and into rock to satisfy the diameter and embedment depth in sound rock as indicated on the plans. All excavated material shall be disposed of by the Contractor. The actual top of sound rock will be determined by the Engineer. When the top of sound rock encountered is above or below the estimated elevation indicated on the plans, the piles shall be cut or spliced per Article 512.05(a) to satisfy the required embedment in rock.

The Contractor shall be responsible for hole stability by using accepted drilling methods and temporary casing where site conditions warrant, no permanent casings or side forms will be allowed. All loose rock, earth, debris and water shall be removed from the hole prior to placing concrete. If the flow of water into the hole is excessive or if pumping operations are likely to cause hole instability, the level of water in the hole shall be allowed to stabilize and the concrete placed by tremie methods according to Article 503.08 of the Standard Specifications.

The bottom of each hole shall be filled with Class SI Concrete to a depth of at least 6 inches (150 mm) and then the piles shall be placed in the hole and properly located. The piles shall be securely braced and held in position prior to and during the placing and curing of the remainder of the Class SI Concrete until test specimens show that a modulus of rupture of 650 psi (4.5 MPa) has been attained. Any operations that might damage the concrete around the piles shall be deferred until the concrete attains the required strength. The hole shall be filled with Class SI Concrete as detailed in the plans.

This work will be paid for at the contract unit price each for SETTING PILES IN ROCK. The Class SI Concrete and all shaft excavation through soil and rock shall not be paid for separately but shall be included in this item. The furnishing of piles is not included in this item but will be paid for elsewhere in this contract.

Added 7-19-11