Exhibit 3:
American Engineering Testing (AET)
Subsurface & Geotechnical Analysis Plan

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
• ENVIRONMENTAL
• GEOTECHNICAL
• MATERIALS
• FORENSICS

WORK PLAN FOR GEOTECHNICAL INVESTIGATION

Fillmore County Wind Project

Harmony, Minnesota

AET #01-04244

Date:

August 11, 2008

Prepared for:

EcoEnergy Wind
PO Box 95, 725 Main Avenue North
Harmony, MN 55939

St. Paul, MN
Duluth, MN
Mankato, MN
Marshall, MN
Rochester, MN
Pierre, SD
Rapid City, SD
Sioux Falls, SD
Wausau, WI

AMERICAN ENGINEERING TESTING, INC.

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• MATERIALS
• FORENSICS

August 11, 2008

EcoEnergy Wind
PO Box 95
725 Main Avenue North
Harmony, MN 55939

Attn: Mr. Don Miller, PE
Minnesota Wind Project Manager

RE: Work Plan for Geotechnical Investigation
Fillmore County Wind Project
Harmony, Minnesota
AET #01-04244

Dear Mr. Miller:

EcoEnergy's proposed wind project in Fillmore County will be situated within karstic terrain. Because of this, a detailed geotechnical investigation is necessary in order to adequately address foundation design issues for the wind turbines.

The following document presents a work plan for a geotechnical investigation to characterize the foundation issues at each of the wind turbine foundations. In addition, the document presents a brief discussion of potential wind turbine foundation options, depending on the karst conditions encountered.

The document also presents information on AET's qualifications and experience.

Please call if you have any questions about this document.

Sincerely,

James C. Rudd, PE
Principal Engineer
Licensed Professional Engineer
Minnesota Registration No. 13996

Phone: (651) 659-1367
Fax: (651) 659-1379

TABLE OF CONTENTS

WORK PLAN FOR GEOTECHNICAL INVESTIGATION
FILLMORE COUNTY WIND PROJECT
HARMONY, MINNESOTA

AET #01-04244

GEOLOGY/SUBSURFACE CONDITIONS

Review of geological publications show that the project is situated within karstic limestone terrain. Karst terrain typically contains some unique subsurface conditions that need to be considered in design of the wind turbine foundations. These unique conditions include the following: (1) an irregular bedrock surface, (2) presence of voids in the bedrock, and (3) presence of very loose zones in the overburden soils above the bedrock surface. Careful geotechnical investigations are required so that the extent of these special conditions can be identified at each of the wind turbine foundation locations. Depending on actual subsurface conditions identified in the geotechnical investigation, the foundations would then be designed to mitigate any issues related to the karst limestone.

GEOTECHNICAL INVESTIGATION

General

At each of the wind turbine sites, the geotechnical investigation will consist of three phases – (1) a geophysical investigation (electrical resistivity) to explore for voids in the bedrock; (2) followed by soil/bedrock borings to check the results of the electrical resistivity survey; (3) followed by a series of electronic cone penetrometer (CPT) soundings if the potential for loose zones in the soil overburden are suspected.

Geophysical Investigation

Electrical resistivity imaging will be used to explore the anticipated subsurface conditions (soil

overburden overlying potentially vuggy carbonate bedrock). The method consists of creating an electrical current in the ground by means of an array of electrodes at the ground surface. By varying the spacing of the current and potential electrodes, a profile of electrical resistivity versus depth is produced.

Electrical resistivity is an indicator of subsurface material properties. Materials with minimal pore space (such as sound limestone bedrock) will exhibit high electrical resistivity values. If the limestone bedrock contains voids and fractures (which are full of groundwater), then the electrical resistivity will be lower. Saturated soil overburden will exhibit very low resistivity values.

The electrical resistivity profiles at each wind turbine site will be reviewed for apparent low resistivity zones within the limestone formation.

Soil/Bedrock Borings

After review of the electrical resistivity surveys, borings will be drilled to further explore subsurface conditions. Locations of the borings will be selected based on potential void zones in the bedrock, as indicated in the resistivity surveys. The borings will be done with a drill rig. Through the soil overburden, the drilling will be done with hollow stem augers and split spoon sampling of the soils at 2.5 feet intervals. Once the top of bedrock is encountered, then the drilling method will switch to diamond bit coring methods. Continuous rock core samples will be collected and examined to evaluate the quality of the bedrock formation.

A minimum of one soil/rock boring is planned at each wind turbine site, even if the electrical resistivity survey shows competent bedrock.

Groundwater level will also be measured in the boreholes. Groundwater is an important factor in assessing the probability of internal erosion of soil overburden into the karst limestone, as discussed in the following paragraphs.

Seismic CPT Soundings

A common situation in karst terrain are zones of very loose overburden soils directly above the bedrock surface. This condition develops due to erosion of the overburden soils into bedrock voids and fractures. As ground water flows from the overburden soil into the bedrock voids, internal soil erosion will occur. This "bottom up" erosion pattern creates very loose zones (or even voids) in the lower portion of the overburden thickness. As the erosion progresses over time, the void will increase in size. Surface subsidence will develop as the void size increases. Eventually, a sinkhole will develop at the ground surface as the void collapses.

After completion of the electrical resistivity and soil borings, the results may show a potential for this condition under some of the turbine sites. At these turbine sites, we plan to push a series of seismic cone penetrometer (CPT) soundings within the footprint area of the turbine foundation. The CPT soundings will be done on a triangular pattern under the turbine location. The CPT sounding will give a continuous profile of soil relative density. If loose zones are encountered, then a mitigation plan can be developed for the foundation design.

WIND TURBINE FOUNDATION DESIGN

General

The preferred foundation for the wind turbines will be a mat foundation constructed at about 8 feet depth. In order to design this foundation type, the bearing capacity and settlement potential of foundation soils at each turbine site needs to be evaluated. Depending on the subsurface conditions at each turbine site, a variety of mitigation methods may be necessary to successfully support the turbines. The various potential methods are briefly discussed below.

Case No. 1 - No Mitigation Required

If the geophysical survey and boring show that caverns do not exist in the bedrock, and if the boring and seismic CPT soundings show that the overburden soil does not contain loose zones, then no

mitigation would be necessary. The mat foundation would be designed to bear directly on the overburden soils at a depth of about 8 feet. The bearing pressure of the overburden soils will be determined based on the results of the soil borings and seismic CPT soundings.

Case No. 2 - Soil Correction to Densify Loose Overburden

If the geophysical survey and boring show that caverns do not exist in the bedrock; but the soil borings and seismic CPT soundings show that loose zones do exist in the overburden soils, then some mitigation would be necessary. One method of mitigation would be to excavate the overburden soils down to the top of bedrock, and then backfill the excavation with well-compacted engineered fill. The mat foundation would then be supported on the compacted fill materials.

Case No. 3 - Soil Correction with Rammed Aggregate Piers

The Case No. 2 mitigation method (discussed above) would only be used if the depth of overburden was fairly shallow (less than 10 feet). If deeper deposits of loose overburden are encountered at some of the turbine locations, then an alternative method for stiffening the overburden would be to install a series of rammed aggregate piers. These are constructed by first augering a 30 inch diameter hole through the soil overburden, and then backfilling the hole with compacted aggregate material. The rammed aggregate piers are typically installed on 6 to 8 feet spacing under the footprint area of the mat foundation. After the rammed aggregate piers are installed, then the mat foundation would be constructed, similar to Cases 1 & 2.

Case No. 4 - Drilled Micropiles

Cases 2 and 3 address improvement of the loose overburden soils only. These two methods would not be sufficient if there is a potential for future internal erosion of the soil overburden into the karst limestone. The internal erosion potential would depend on the extent of voids in the limestone, and whether or not a water table exists in the overburden.

In this case, instead of supporting the turbine on a mat foundation bearing on the soil overburden, the foundation would be supported on a deep foundation bearing in the karst limestone. The deep foundation would consist of a series of micropiles drilled into the karst limestone.

The micropile is a small diameter (< 12 inches) drilled and grouted friction pile. The finished pile incorporates steel reinforcement, which resists most of the load. The grouted zone transfers the load to the surrounding fractured and weathered limestone. Since the micropile is a friction element, there would not be a concern for potential solution cavities located below the pile tip, as would be the case with an end bearing pile. The quality of the karst rock would be evaluated as the rock is drilled during micropile installation. In addition, load testing would be done on selected piles to confirm that the design compressive and tension loads are attained in the installed piles.

PROJECT TEAM QUALIFICATIONS

Project manager for the geotechnical investigation will be James Rudd, P.E. of American Engineering Testing, Inc. (AET). James Rudd has managed or provided technical oversight on geotechnical investigations for fourteen (14) wind turbine projects during the past 2 years. A summary of these projects is given in Table 1 on the following page. A resume of experience and qualifications for James Rudd is attached in Appendix A.

The resistivity surveys will be supervised by Roger A. Carpenter, P.G. of Brookfield Resources, Inc. Brookfield will be a subconsultant to AET for this work. Mr. Carpenter has extensive experience in geophysics, and has worked with AET on projects in the past. A resume of experience and qualifications for Roger Carpenter and Brookfield Resources are attached in Appendix A.

Table 1: James Rudd, P.E. Project Experience
Geotechnical Investigations for Wind Farm Projects

Project Name	Location	Number of WTG	Year
High Plains	Texas	8	2006
Twin Groves I	Illinois	122	2006
Camp Grove	Illinois	100	2007
Twin Groves II	Illinois	120	2007
Tatanka	North Dakota & South Dakota	120	2007
Northern Plains	North Dakota	27	2007
Cohocton	New York	50	2007
Prattsburg	New York	37	2007
Smokey Hills I	Kansas	56	2007
Taconite Ridge	Minnesota	10	2007
Sherbino Mesa	Texas	50	2007
Smokey Hills II	Kansas	99	2008
Red Hills	Oklahoma	82	2008
Majestic	Texas	53	2008

Additional information describing AET services and experience are attached in Appendix B.

Report Prepared by:

James C. Rudd, PE
Principal Engineer
MN Reg. #13996

Appendix A

AET Project No. 01-04244

Resume of James C. Rudd, P.E.
Resume of Roger M. Carpenter, P.G.
Description of Brookfield Resources, Inc.

James C. Rudd, PE

Principal Engineer ■ American Engineering Testing, Inc.

Education

San Diego State University; M.S. Civil Engineering, 1977
University of Minnesota; B.S. Mechanical Engineering, 1971

Registration

Professional Engineer, Minnesota, North Dakota, South Dakota, Wisconsin

Employment

AMERICAN ENGINEERING TESTING, INC. - Principal Engineer, May 1993 - Present
Responsibilities include project management, proposal preparation, technical studies, developing piezocone technical practice, managing geotechnical investigations and preparation of engineering reports. Manager of drilling and earth structures group.

Woodward-Clyde Consultants, Minneapolis - Senior Project Engineer, 1991 - May 1993
Twin City Testing Corp., St. Paul - Staff to Chief Geotechnical Engineer, 1978-1988, 1989-1991
SEH, Inc., St. Paul - Geotechnical Department Manager, 1988-1989

Professional Memberships

Minnesota Geotechnical Society

Wind Turbine Project Experience

Geotechnical Investigation & Evaluation
High Plains Wind Project; Texas
Twin Groves I & II Wind Projects; Illinois
Camp Grove Wind Project; Illinois
Smokey Hills I & II Wind Projects; Kansas
Tatanka Wind Project; North Dakota & South Dakota
Northern Plains Wind Project; North Dakota
Sherbino Mesa Wind Project; Texas
Red Hills Wind Project; Oklahoma
Majestic Wind Project; Texas
Cohocton Wind Project; New York
Prattsburg Wind Project; New York
Taconite Ridge Wind Project; Minnesota

Geotechnical Technical Review for Owner or Contractor
Biglow Canyon Wind Project; Oregon
Prairie Star Wind Project; Minnesota
Silver Star Wind Project; Texas
Roscoe Wind Project; Texas
Capricorn Ridge Wind Project; Texas
Arlington Wind Project; Oregon
Flat Ridge Wind Project; Kansas
Central Plains Wind Project; Kansas

1-800-972-6364
www.amengtest.com

Roger M. Carpenter, P. G.
Minneapolis, Minnesota

SUMMARY OF PROFESSIONAL EXPERIENCE:

1998-Present **Principal Geophysicist / Geologist**. Brookfield Resources Inc., Minneapolis, Minnesota. Consulting services for the engineering and environmental industries.

Geophysical Experience includes:

Metropolitan Council (MCES): Surface geophysics for bedrock and soil characterization for tunnel construction by tunnel boring machines. Several projects, each several miles in length. Location of deeply buried "lost" pipes, both on land and in the Mississippi River. Marine geophysical surveys were conducted for tunnels under the Mississippi River, which included marine seismic, side-scan sonar and marine magnetometer surveys. Developed unique seismic reflection method for use in crowded streets and urban corridors. Electromagnetic surveys used for washout and sinkhole detection along existing corridors.

Minnesota Department of Transportation (MnDOT): Geophysical surveys conducted along several miles of highway to detect sinkhole collapse features caused by underground iron mining tunnels. Other surveys conducted to determine organic, clay and peat deposits along proposed roads. Surveys conducted for bedrock void detection for bridge foundations and retaining wall construction.

U.S. Army Corps of Engineers: Land and marine geophysical surveys conducted on lakes, reservoirs and the Mississippi River. Bottom sediments characterized by geophysical methods for native mussel and Zebra mussel investigations.

Archeological Geophysics: Conducted geophysical surveys for State Historic Preservation Offices (SHPO) and Native American tribes.

Major Petroleum Refineries: Fracture surveys conducted for determination of fluid flow and subsurface product leaks.

Municipalities and Real Estate Developers: Geophysical surveys conducted for siting high-volume water supply wells and wellhead protection areas.

1981-1998 **Senior Geophysicist / Geologist and Supervisor**. Geophysical and geotechnical consulting, including projects for petroleum companies, large-scale natural gas pipelines, wind-farm power generation, mining companies and commercial clients. Water supply exploration and contaminated site investigation, utilizing geophysical methods of investigation.

EDUCATION and CERTIFICATION:

Master of Science in Geological Sciences (Geophysics and Geology Options), University of Wisconsin-Milwaukee, Wisconsin.

Registered / Licensed as a Professional Geologist (P.G.) in Minnesota, Wisconsin, Texas and Wyoming.

BROOKFIELD RESOURCES INC.
P.O. Box 390374
Minneapolis, Minnesota 55439

Brookfield Resources Inc. (BRI) specializes in all aspects of geophysical solutions for geotechnical engineering and environmental products. These geophysical services include, but are not limited to, ground penetrating radar surveys, resistivity surveys, seismic surveys, liner leak detection, landfill imaging, subsurface investigations, environmental permitting and compliance, and environmental site assessments. BRI assists our clients in resolving their geotechnical projects, regulatory obligations, environmental concerns, and geologic problems within budget and on time. BRI, incorporated in 1998, prides itself for "staying ahead of the learning curve," and drawing on our vast experience to apply innovative technologies to meet our client's needs.

Tunneling Projects. Geophysical surveys for tunneling projects have included determining depth to-bedrock, void and sinkhole identification, and subsurface characterization. Subsurface characterization has included identification of sand and gravel deposits, clays, peat and organic soils. Geophysical surveys for tunneling projects have been conducted on land and within the Mississippi River.

Geophysical Surveys. Brookfield Resources focuses on high-resolution, nonintrusive and nondestructive geophysics - the science of detecting and mapping underground, underwater, or other objects and features that are hidden. Geophysics can provide early warning of subsurface hazards such as buried utilities, sinkholes, drums, underground storage tanks (USTs) and contaminant plumes, eliminating costly mid-project surprises.

Our product is geophysical surveys - which we typically provide to clients who are geotechnical engineers, civil engineers, environmental scientists, geologists, archaeologists, architects, attorneys, and many others. Brookfield Resources has a combined total of over 23 years of experience in engineering, environmental, and archaeological geophysics using electromagnetics (EM), ground penetrating radar (GPR), seismic refraction and reflection, microgravity, magnetics, sonar, borehole logging, metal detection, resistivity, utility location, and many other techniques.

Brookfield Resources' senior geophysicist, who is responsible for final approval of all work, is a registered Professional Geologist (P.G). With our education, experience, and knack for creative problem-solving, Brookfield Resources has developed a reputation for successfully completing particularly difficult or unusual subsurface detection and mapping. Most projects require customizing our survey procedures to accommodate the variety of environments that are unique to a particular site.

Environmental Investigations. Brookfield Resources has managed many geophysical projects involving environmental site characterization and remediation. BRI has conducted geophysical site characterization studies for petroleum contamination sites, landfills, and abandoned industrial facilities. Geophysical results have been incorporated in designing ground water monitoring networks for landfills and designing ground water recovery well systems for landfills and petroleum contamination remediation projects. BRI has directed or consulted on geophysical projects involving municipal wells contaminated by organic chemicals, agricultural chemicals, or naturally occurring inorganic compounds and radionuclides.

Appendix B

AET Project No. 01-04244

AET COMPANY INFORMATION

Office Locations

Firm Description

Drilling and Testing

Geotechnical Engineering

Office Locations

FACTS

We have 18 offices located in Minnesota, Wisconsin, South Dakota and Florida.

Florida Office

Bonita Springs (Fort Myers)
Manager: Gerard Moulzolf, PG
PO Box 2648
Bonita Springs, FL 34133
Telephone: 239-947-4332
Mobile: 612-616-6155
Fax: 239-947-4330
gmoulzolf@amengtest.com

Minnesota Offices

Duluth
Manager: Rob Wahlstrom, PE, PG
4431 West Michigan St., Ste. 4
PO Box 16008 (55816)
Duluth, MN 55807-2711
Telephone: 218-628-1518
Fax: 218-628-1580
duluth@amengtest.com

Chanhassen (Minneapolis)
Manager: Tom Venema, PE
1715 Lake Drive West
Chanhassen, MN 55317
Telephone: 952-361-3781
Fax: 952-368-4218

Crosby
Manager: Rick Eidem
1 Lakeshore Drive
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Crosby, MN 56441
Telephone: 218-546-6371
Fax: 218-546-8196
reidem@amengtest.com

International Falls
Manager: Joe Kendzora
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International Falls, MN 56649
Telephone: 218-283-2958
Fax: 218-283-2958

Mankato
Manager: Greg Guyer, PE
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Mankato, MN 56001-3021
Telephone: 507-387-2222
Fax: 507-387-6999
mankato@amengtest.com

Marshall
Manager: Tom James
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Marshall, MN 56258-1673
Telephone: 507-532-0771
Fax: 507-532-0776
marshall@amengtest.com

Rochester
Manager: Al Hovick
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Rochester, MN 55901-0269
Telephone: 507-281-3547
Fax: 507-281-4941
rochester@amengtest.com

Rogers
Contact: Brian Arman
12510 Fletcher Lane North
Suite B
Rogers, MN 55374
Telephone: 763-428-5573
Fax: 763-428-5575
barman@amengtest.com

Saint Paul*
Contact: Robert Struve, PE
550 Cleveland Avenue North
Saint Paul, MN 55114-1804
Telephone: 651-659-9001
Fax: 651-659-1379
info@amengtest.com

South Dakota Offices

Beresford (Sioux Falls)
Manager: Clair Christians
107 West Oak Street
Beresford, SD 57004
Telephone: 605-763-8061
Fax: 605-763-8063
cchristians@amengtest.com

Pierre
Manager: Robert Temme, PE
3800 E Hwy 34
Pierre, SD 57501
Tel: 605-224-9535
Fax: 605-224-9538
pierre@amengtest.com

Rapid City
Manager: Robert Temme, PE
1745 Samco Road
Rapid City, SD 57702
Tel: 605-388-0029
Fax: 605-388-0064
rapidcity@amengtest.com

Wisconsin Offices

Hudson
Contact: Chad Underwood, P.E, P.G.
575 Schommer Drive, Suite C
Hudson, WI 54016
Telephone: 715-377-4666
Mobile : 612-965-9287
Fax: 715-377-4667
cunderwood@amengtest.com

Menomonie
Manager: Ray Martinson
302 B West Wilson Avenue
Menomonie, WI 54751
Telephone: 715-235-8844
Fax: 715-235-4666
rmartinson@amengtest.com

Schofield (Wausau)
Office Manager: Doug Ellingsen
Geotech Manager: Greg Owens, PG
4203 Schofield Avenue
Schofield, WI 54476-2708
Telephone: 715-359-3534
Fax: 715-359-4032
wausau@amengtest.com

Nondestructive Field Offices
Palatka, FL & Eau Claire, WI
Manager: Dave Fitterer, CWI
Telephone: 800-972-6364
dfitterer@amengtest.com

***Corporate Office Location**

AMERICAN ENGINEERING TESTING, INC.

www.amengtest.com
(800) 972-6364

Rev 4/08

Personnel Categories

The firm has a total staff of more than 280 full-time employees in fifteen locations. Forty of the staff are registered professionals, typically professional engineers (PEs) or professional geologists (PGs). Staffing increases to approximately 330 in the construction season.

Personnel Type	Number of Individuals
Technical Support Staff	44
Chemical Engineers	1
Chemists	1
Civil Engineers	3
Construction Inspectors	17
Environmental Engineers	2
Environmental Scientists	12
Environmental Technicians	9
Hydrogeologists	2
Geotechnical/Soils Engineers	33
Pavement Engineers	3
Drillers	35
Geologists	17
Materials/Engineering Technicians	63
Mechanical Engineers	1
Nondestructive Technicians	29
Preservation/Restoration Engineers	2
Structural Engineers	1

What does it mean to be a registered/licensed professional engineer?

The "PE" designation means that a person has a degree in engineering from an ABET-accredited college or university, passed the fundamentals exam, satisfied professional work experience requirements, and passed the rigorous PE (Principles and Practice of Engineering) exam for the specific discipline.

The letters "PE" after a person's name, therefore, signify accomplishment, professionalism, experience, and dedication to the preservation of public health, safety and welfare.

Employees of AET are members of the National Society of Professional Engineers

Additional firm information

Firm name: American Engineering Testing, Inc. (AET)
Subsidiary of: American Consulting Services, Inc. (ACS)
Business type: Minnesota corporation; corporate office located in Saint Paul, Minn.
DUNS #: 06-145-6422 SIC/NAICS: 8711 / 541330
Ownership: Employee-owned
Legal status: S-Corp
President: Terry Swor, PG
Corporate telephone: (651) 659-9001 Corporate fax: (651) 659-1379
URL: www.amengtest.com
Special status: Affirmative Action, Equal Opportunity Employer

American Engineering Testing
800-972-6364
www.amengtest.com

American Engineering Testing (AET) is an employee-owned corporation providing geotechnical, environmental, materials and forensics consulting and testing services to public and private sector clients in a broad spectrum of industries.

We have built our reputation on *experience, quality, and fulfilling client requirements.* Many of our engineers and certified technicians, including principals who are actively involved in project management, have decades of practical experience in their areas of specialization. They also have access to an extraordinary accumulation of site data and construction history in the Upper Midwest, which proves useful as well as cost- and time-efficient on many projects.

As a consulting engineering company and independent laboratory, quality is the nature and purpose of all our services. We test, analyze, monitor and inspect in order to document, verify and sometimes improve the design and construction effort. To that end, we are accredited by the AASHTO Materials Reference Laboratory (AMRL) to perform geotechnical and construction services in accordance with ASTM: E329. Our own in-house quality assurance/quality control program was established in 1993 to systematically and rigorously audit all departments and office/labs on test procedures, calibrations and test accuracies.

Firm History

AET was founded in 1971 and originally known as Geotechnical Engineering Corporation, in Roseville, Minnesota. In 1989, the 22-person firm was purchased by the current principals. In early 1990, the business was renamed American Engineering Testing, Inc. and moved to the current headquarters in the Saint Paul Midway area. The move to a larger and more centrally located, five-acre site has facilitated phased growth in staff and service.

In the early 1990s, AET opened the first regional offices in Duluth and Mankato. Three years later, facilities in Rochester, Minnesota, and Wausau, Wisconsin, opened, followed by new regional office/labs in Marshall, Minnesota; Pierre, Sioux Falls and Rapid City, South Dakota.

Chanhassen (southwest Twin Cities) and La Crosse, Wisconsin, offices opened in 2005.

In 2006, AET bought the major assets of another leading consulting engineering firm, GME Consultants, and grew by 65 staff members. At the same time, we gained new office locations in Crosby and International Falls, Minnesota, and Menomonie, Wisconsin.

Forensic evaluation of bridge column

Primary services:

Consultants

Environmental

Geotechnical

Materials Testing

Forensics

Contact:
Sean Killackey
Business Development
550 Cleveland Avenue North
Saint Paul, MN 55114-1804
(651) 659-9001, Fax: (651) 659-1347
Email: skillackey@amengtest.com
Web site: www.amengtest.com

American Engineering Testing
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AET offers a highly trained, experienced staff using state-of-the-art equipment. Our drill crews normally consist of two skilled technicians trained to log borings, classify soils and bedrock, install monitoring wells or piezometers, and perform various *in situ* soil or bedrock tests. As part of our quality control system, all soil and bedrock samples are returned to our laboratory for verification of material classification and log presentation. We use gINT software for computer-generated logs and certain test reports.

Personnel assigned to drill crews and subsurface sampling duties receive training that meets OSHA and DOT requirements. This training includes 40-hour and 8-hour refresher courses on hazardous materials handling, confined space entry, hazardous materials transport, and other salient topics.

Our fleet of twenty modern drill rigs has a wide spectrum of capabilities and is a key aspect of AET's ability to ensure efficient, reliable testing results. Rigs range from small, portable units for limited spaces to various truck-mounted units, to track or flotation-tire, all-terrain units. Our rigs are regularly calibrated with our in-house capabilities. We have a large assortment of drill tools to tackle drilling tasks in most soil and bedrock situations.

Drilling services include:

- **Soil borings, including angle drilling**
  - *Split-spoon sampling*
  - Auger sampling
  - Thin-walled tube sampling, including piston sampler
- **Rock coring**
- **In-situ testing**
  - Piezocone penetration testing
  - Shear wave velocity testing
  - Pressuremeter
  - Vane shear
  - Iowa borehole shear
- **Soil laboratory testing**
- **Instrumentation installation**
  - Inclinometer
  - Piezometer
  - Extensometer
- **Water infiltration/field permeability**
- **Monitoring well installation, sampling and abandonment**
- **HydroPunch(TM) discrete groundwater sampling**
- **Lysimeter installation**
- **Vent installation for soil vapor extraction, air injection, etc.**
- **Below-surface radon detectors**
- **Gravel exploration**

Piezocone rig for Electronic Cone Testing of the subsurface

CME 750 all-terrain drill rig for standard penetration testing

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Geotechnical Engineering

The geotechnical division of American Engineering Testing, Inc. specializes in characterizing the physical properties of earth materials and predicting reactions to imposed loading conditions. The division commands a technical corps of certified and degreed individuals whose aggregate experience entails thousands of projects, routine as well as large and complex.

For most projects, geotechnical engineering services are directed toward characterizing these primary objectives:

- Soil or bedrock load-carrying capacity
- Settlement potential
- Groundwater level and associated impacts
- Constructability and adjacent property impact

AET engineers are committed to carefully understanding the project goals and requirements, and reviewing these requirements in terms of established site conditions. Based on these factors, we recommend a program of services embracing both practical and economical solutions which take into consideration both established as well as innovative technologies.

Typical services include:

- Standard Penetration Testing (SPT)
- Piezocone Testing (CPT)
- Foundation analysis and alternatives
- Dynamic Pile Testing (PDA)
- Slope stability analysis
- Settlement evaluations
- Grading recommendations
- Pavement recommendations
- Pavement rehabilitation studies
- Pavement management

Possible areas of geotechnical analysis include:

Structural foundations

- Shallow spread footings
- Mats
- Drilled piers
- Piling (driven and auger-cast)
- Slurry walls
- Earth anchors

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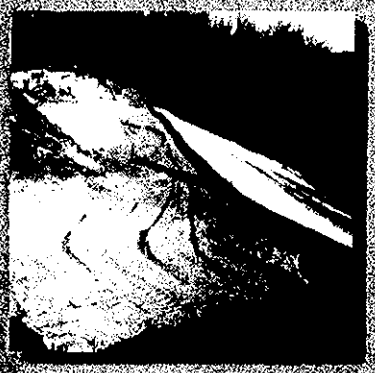
Geotechnical Engineering



Infrastructure

- Subgrade preparation
- Underground utilities
- Pavement design
- Pavement rehabilitation
- Pavement testing
- Pavement materials recommendations

Ground improvement

- Vibratory densification
- Dynamic compaction
- Grouting
- Earth reinforcement
- Soil wick drains/surcharging

Earth structures

- Dams
- Ponds
- Retaining walls
- Slope stability
- Seepage

Construction observation and testing

- Preconstruction exploration and geotechnical analysis are usually the initial step in a successful project. We provide experienced field personnel to evaluate whether recommendations/specifications have been satisfied during construction. If conditions are uncovered that differ from what is anticipated, we can provide evaluation and recommendations for revisions.

Our experience encompasses all commercial, industrial and government sectors, including transportation, sports and entertainment, utilities, school, office, retail, land development and re-development, and residential.

From design through construction, our engineers and technicians test, analyze, monitor and observe to help you achieve success with cost-efficiency.

American Engineering Testing
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