

ASSOCIATION OF ENGINEERING GEOLOGISTS

"Serving Professionals in Engineering, Environmental, and Ground-Water Geology"

THE ROCKY MOUNTAIN SECTION NEWSLETTER

www.aegrms.org

MEETING DATE

**THURSDAY
FEBRUARY 10th, 2005**

TIME

5:30 p.m. Social Hour
(Doors open at 5:00 p.m.
for exhibitors to set up)
6:30 p.m. Dinner
7:30 p.m. Presentations

LOCATION

**Green Center, Colorado
School of Mines**
924 16th St
Golden, CO
See map below

COST

\$20 Members
\$22 Non-members
Free for All Students

RESERVATIONS

c/o AEG Reservation Line
(303) 790-2161 x 243 or
meetings@aeqrms.org
**BY NOON, MONDAY
FEBRUARY 7th**

Student Night 2005

**We have two students presenting at Student Night this year.
Below are their abstracts:**

Effects of Terrain and Soil Variability on Slope Stability

Brenda Green
South Dakota School of Mines

This project explores the effects of soil strength parameters and accurate terrain models on slope stability. A colluvium-protected hill slope covers five Lower Cretaceous sedimentary deposits creating a resistant hogback trending N-S through Rapid City, SD. Elevations from a USGS 30-meter digital elevation model (DEM) were used to create numerous two-dimensional slope profile models. These geometric profiles, along with soil strength parameters, were analyzed using a slope stability program, STABL, to determine factors of safety at intervals along the slope. A sensitivity analysis of these parameters, including unit weight, cohesion, and friction angle, was performed to determine those parameters most influential in calculating the factor of safety. Based on the STABL results, a slope stability hazard map was created using Geographic Information Systems (GIS). More accurate two-dimensional slope models were derived from a 1-meter resolution terrain model, created from a Light Detection and Ranging (LIDaR) survey over part of the study area. Sensitivity analysis showed that cohesion and friction angle influenced stability to a much higher degree than soil unit weight. The resulting stability map was verified through a comparison with mapped slope failures. Higher resolution terrain data resulted in lower factors of safety, especially for shallow slides occurring on steeper slopes.

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Aggregate Resource Assessment for the La Posta Band of Mission Indians, San Diego County, California

Dawn A. Schippe, E.I.T.
Colorado School of Mines

The La Posta Indian Reservation is located 50 miles east of San Diego, CA, on Interstate 8. There is an inactive decomposed granite (DG) pit that has been previously mined. The Tribe wants to reopen it and would like to know the quality and quantity of the resource and possible end-products. The potential for using the more competent underlying bedrock as a crushed rock resource will also be evaluated.

The rock unit of interest is the Cretaceous Tonalite of La Posta, a highly weathered intrusive composed of quartz, plagioclase, biotite, and hornblende. Material quality of the DG will be determined by engineering tests, with surface sample results of the weathered material indicating a high sand equivalent value after minor processing. It exhibits a uniform grain size distribution between one inch and the #50 sieve with a minimal amount passing the #200.

Quantity of DG, or thickness of the rippable layer, is being estimated in two phases:

1. Seismic refraction surveys were performed in February 2004 to approximate depth to non-rippable bedrock and to assess the variability of this depth throughout the study area, and
2. A sonic and core drilling program was conducted in August 2004 to verify the geophysical data and obtain subsurface samples for further engineering testing.

Results from the refraction surveys show changes in the thickness of rippable DG across the study area, estimated from 15 feet to over 100 feet. In places, the transition is gradational and the depth will be dependent upon the excavation equipment used. As anticipated, drilling data generally confirmed the subsurface conditions suggested by the refraction surveys. However, samples obtained through the two drilling methods varied significantly in quality, with the core samples preserving more of the rock characteristics (texture, weathering, fractures, etc.) than the sonic samples.

The final product will include maps and cross-sections depicting quality and quantity of DG, in addition to how they change, across the study area and with depth.

February Meeting Location Changed!!

Please note that the meeting this month is located in the basement of the Green Center on the CSM campus. A map is attached and more information is on the first page side bar. Signs will be posted inside the Green Center.

Words From the Chair

Sorry, the chair is out of town so there are no words this month. Don't worry, there will be words from Ben in the March newsletter.

Opinions on AEG Possible Name Change

We're sure that most of you received the email from AEG, but we just wanted to encourage and remind you to cast your opinion on the issue.

From AEG President, David Bieber:

A name change requires a change in the AEG Constitution, which requires that a ballot be sent to the entire membership. Enactment of the change requires that two-thirds of the ballots returned within the voting period be cast in favor of the change. The AEG Executive Council and Board of Directors would like opinions from the membership regarding the name change issue. Please log onto the AEG website, go to the AEG Message Board in the Member Services section, and give us your thoughts. If there appears to be a consensus to adopt the modification to our name, then we will put it to a vote of the entire membership.

Your Business Card Here

The section is looking for companies or individuals who would like to advertise their products or services in the section newsletter and on the website. This is anything from a business card (\$10/month), quarter page spread (\$20/month), to a half page exposition (\$40/month). If you are interested, contact Kristi Ainslie newsletter@aeqrms.org.

RMS 2004-2005 Upcoming Presentations

March 10, 2005 – **Geophysical Applications for Roadway Investigations**
Khamis Haramy, Central Federal Lands Highway Division

April 14, 2004 – **Debris Flow Remediation**
Erik J. Rorem, Geobrugg

May 12, 2005 – **Colorado Rockfall Program**
Ty Ortiz, Colorado Department of Transportation

Case Histories

The past two years, we have read about very interesting projects from Harry Siebert and Charlie Robinson. We are still looking for individuals to provide their knowledge and experience to the AEG-RMS community through case histories and articles of interest. Please contact Kristi Ainslie at newsletter@aeqrms.org if you have anything you would like to share.

Parting Words

The year is just flying by so far. We apologize for getting the newsletter out so late this month, but with busy field schedules (have to take advantage of the unseasonable weather) and some difficulties with a location for student night we are a little behind the ball.

It is time for the annual student night, we have two great presentations this year so be sure to come out and support the geologists, engineering geologists, and geological engineers of tomorrow. If there are any employers looking for some entry level employees, this is a great event to meet several energetic and intelligent candidates.

The Editors
Kristi Ainslie
Ed Friend



We would like to take this opportunity to introduce you to Spectrum Exploration, Inc.

We offer Geotechnical and Environmental Drilling services to Colorado (*Denver and Colorado Springs shop locations*) and surrounding states.

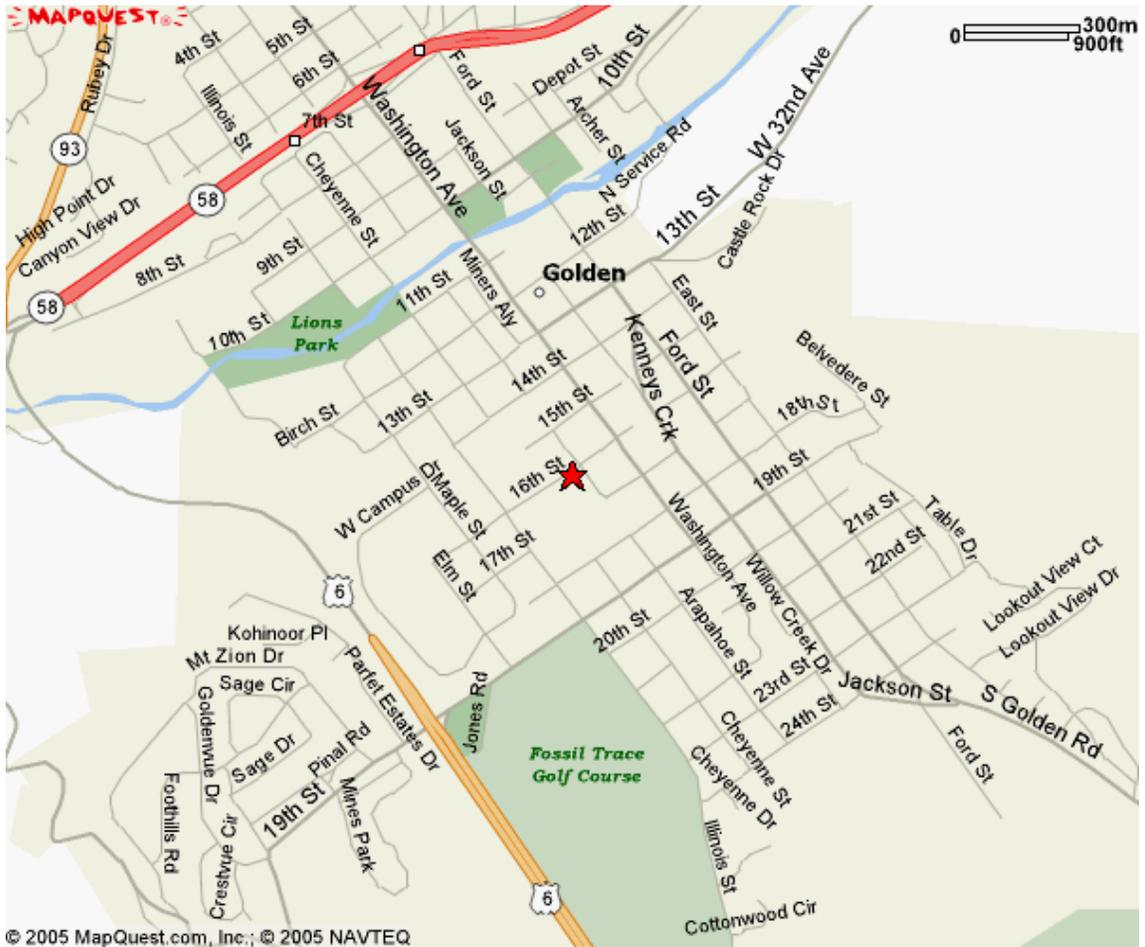
Rock Core Drilling/Packer Testing
Continuous Dry-Core Sampling
TUBEX / DTH Hammer
Casing Advancers
Air / Mud Rotary
Augers – 4” to 10-1/4” ID H.S.A.
Direct Push



CPT Jack

Please contact Marc Haes for more information:

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