



# KEBS Quarterly News

Land Planning · Engineering · Surveying  
Soils Testing · Wetlands Planning

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## Global Positioning Equipment

Global Positioning equipment has been available to the surveying industry for about the last 20 years. It has only become affordable for most surveying companies to purchase over the last 10 years. But now, with improved technology and affordability, excavation contractors are purchasing GPS to mount on their equipment to save time and money when mass grading a site.

With this new technology, new obstacles are introduced for excavators. Gone are the days when the bulldozer operator could just drive along and grade to the mark on the stake. He now must know how to work the small computer on his machine and understand what it is telling him. The results of the grading done by the operator are a direct result of the accuracy of the file that was created to be uploaded into the GPS.

This file is called a Digital Terrain Model, or DTM. The DTM is a mathematical model of the entire site based on the topographic survey data, the proposed grading plans, and some complex topological equations used to fill in the 'spaces' between surveyed points. On a traditional site, an operator would make sure grade was constant between two surveyed points, either with a string line, eye level, or after enough experience, rough it in by eye. The DTM now replaces these methods with a mathematical model, which is efficient, but more complex. The only problem with the use of DTM data is that it is computationally intensive, and small errors can add up to catastrophic results. The accuracy of your site grading and earth work is now directly dependant upon the accuracy of the DTM being used.

Several area contractors have already converted to this new system, and have either hired new staff familiar with DTM files to initialize and troubleshoot their systems, or have outsourced this phase of work to a consultant or equipment dealer. Other contractors have had hesitations about the accuracy, cost, or other factors in this system. With our experience in the field of GPS surveying, and our expertise of utilizing Triangular Irregular Networks or TINs (a major component of the DTM), KEBS realized it was a natural progression to explore the creation of DTM data for GPS automated contractors.

Our experience, coupled with some new software, has allowed us to provide site data preparation for our customers. By including accurate and well distributed on-site control points in our DTM, KEBS can implement an integrated solution and you can have more confidence in your DTM, site control, and enjoy the improved production capabilities that accompany this technique without the anxiety that accompanies the learning of new software and computations.



## Landscaping for Energy Savings

As the country becomes more aware of rising energy costs and we move towards a more “green” earth friendly society, we may want to start thinking about how a well-planned landscape can help save on our heating and cooling bills. Plants are a relatively inexpensive way to temper the effects of weather and climate on our homes and buildings. Research has shown that landscaping for shade and wind screening can have some dramatic effects.



Canopy trees planted on the southern and western facades of a building can reduce excessive heat buildup. An average full size shade tree evaporates 100 gallons of water on a sunny summer day, which uses up about 660,000 Btu of energy and gives a cooling effect outside the home equal to five 10,000 Btu air-conditioners. Shading with foliage can reduce the inside temperature of a lightly constructed building such as a garage by 20°F. The effect on a better-insulated structure is less significant. Nonetheless, decreasing heat transfer into your home in the first place will prevent having to cool that same heat. In addition, the space outside a home will be more enjoyable to use on those hot days. Shading is not limited to trees, as vines can also substantially reduce heat gain on the wall of a building.

Similar to shading your home for cooling, wind sheltering to prevent heat loss in cold climates can also conserve energy. Wind increases the heat load on a building by increasing the heat loss to the environment by blowing cold air into and sucking warm air out of a building. When warm air is pulled out, cold outside air is sucked in to replace it. In either case, your furnace must heat this introduced air. Heat loss is proportional to wind velocity flowing past a structure. If the wind speed doubles, heat loss quadruples, a speed increase of five times will multiply heat loss by 25 times. A windbreak of densely planted evergreen trees can deflect wind over a house and decrease heat loss. Some studies have shown over 30 percent savings in winter fuel consumption for a sheltered home when compared to a similar home without a windbreak. Evergreen foundation plantings also have the effect of creating dead air zones around a building, helping to reduce wind velocity and thus reduce heat loss.

Not all sites have the ability to landscape for sizable energy savings and some of these savings can be obtained by use of newer, more energy efficient construction materials. Should you decide to landscape with energy in mind, the correct species of plant materials, as well as the proper height, spacing and location are important considerations. In any event you will be thinking green and saving green!

*Submitted by: Bruce Stewart, Landscape Architect, Haslett Office*

## Kebs to Map Grand Ledge Public Schools' Sites

Kebs has been contracted to perform topographic mapping and boundary surveying on three Grand Ledge Public School sites in preparation for facility upgrades. Kebs will be performing the mapping this spring in order to design site improvements in cooperation with GMB Architects in Grand Rapids. The projects include determining the location and elevation of buildings, structures, utilities, hard surfaced parking and play areas, and also creating contours for the green space areas surrounding Willow Ridge Elementary School, Holbrook Elementary School, and the Marsh Field Baseball diamonds, soccer, and football fields and parking areas. Kebs was selected for this project because of our experience in school-related projects, and the successful completion of previous GMB Architect projects.





## MACDC Conference

Once again, the 107th Annual Winter Conference for the Michigan Association of County Drain Commissioners (MACDC) held in Traverse City on February 15-17, 2006, was a hit. There were great speakers during the seminars including those from MDEQ, MDOT, various Drain Commissioners and engineering/architectural firms. Thank you to all of those that stopped by our booth to talk to us and got to know us a little better. Congratulations to Rachel Grades from the Calhoun County Drain Commissioners Office for winning the Keps Gift Bag filled with golfing items!!

## SUCCESSFUL CONDOMINIUM/SUBDIVISION SEMINAR

Kebs, along with attorneys Gail Anderson from McClelland & Anderson and Jerry Oade from Oade Stroud & Kleiman hosted a breakfast seminar to discuss condominiums/subdivisions on February 28, 2006. Approximately 25 developers, builders, and salespeople attended the seminar. Kebs thanks everyone for coming and appreciates the attorneys for providing valuable information for our clients. If you would like the materials that were distributed at the seminar, please contact Lynn Hose at (517) 339-1014 or by e-mail: lhose@kebs.com.

Be sure to keep an eye out for future seminars including **Property Descriptions & Survey Maps (see page 4)**. Upcoming seminars to be announced.



*Submitted by: Matthew G. Ottinger, Condominium Manager*

## Kebs, Inc. Scholarship Awarded



An awards ceremony was held on March 31, 2006, at Ferris State University, in which Chris Harding, a graduate student, was awarded the Kebs, Inc. Scholarship. The award was presented by Larry and Kay Bryan. Chris is a Surveying student who will be graduating in May. The Annual Kebs, Inc. Scholarship was established in 2002 and is presented to students interested in the Surveying profession.

*Submitted by: Larry Bryan, PS, President*

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### ***KEBS' Mission***

*Working together to provide professional engineering and surveying services that sets the highest standards, while enhancing the quality of life for our employees, clients, and communities.*

## **Breakfast Workshop for Property Descriptions & Survey Maps**

KEBS, Inc. will be hosting a workshop focusing on reading and interpreting property descriptions and survey maps. The types of descriptions that will be discussed include lot descriptions, metes and bounds descriptions, and fractional descriptions. The types of survey maps to be discussed include subdivision plats and Public Act 132 Certified Boundary Surveys.

Larry Bryan, PS, President of Kebs, Inc. with over 35 years of experience in the surveying field, will provide an enlightening view of legal descriptions and survey maps. In addition, Jeff Autenrieth, PS will discuss floodplains in residential areas and their effect of property, including the sale of property.

**Date: Thursday, April 27, 2006**  
**Time: Breakfast 8:30 a.m. - 9:00 a.m.**  
**Seminar 9:00 a.m. – 12:00 p.m.**  
**Place: Spartan Room at Hampton Inn**  
**525 N. Canal Rd.**  
**Lansing, MI 48917**

This is geared towards Real Estate Agencies and Title Companies, but if you would like to attend, you are more than welcome to. This is a complimentary workshop, but an RSVP is required. A continental breakfast will also be available. **If you would like to RSVP, please contact Lynn Hose at (517) 339-1014 or by e-mail: [lhose@kebs.com](mailto:lhose@kebs.com), by Wednesday, April 19, 2006.**

*Submitted by Larry Bryan, PS, President*