



# KEBS Quarterly News

Land Planning · Engineering · Surveying  
Soils Testing · Wetlands Planning

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## Wetland Permitting and Mitigation

I frequently receive calls asking about the MDEQ permit process, especially when impacts to wetlands are proposed, and asking for assistance with translating the confusing language and deciphering the numerous conditions placed upon a permittee once a permit has been granted. Therefore, I thought I would try to head off some of that confusion by providing a bit of general information/guidance regarding wetland mitigation, the permit process, and what you might see once a permit has been granted.

To the point, “Wetland mitigation” is the construction of new wetlands, or the restoration of areas that once were wetlands, to compensate for impacts to wetlands that are regulated. “Impacts” usually refer to activities such as filling, excavating, or impairing the natural functions of the wetlands. If any of these activities are expected to take place within a regulated wetland, a MDEQ permit will need to be applied for, and granted, prior to starting the activity. If the activity involves impacting more than 1/3 of an acre of wetland, a preliminary wetland mitigation plan will need to be included with the permit application. A preliminary wetland mitigation plan provides the MDEQ with general information regarding the size and location of the wetland to be impacted, as well as the size and location of the wetland that is to be constructed or restored. Once received, the application and plan are reviewed by the MDEQ to determine if the proposed activities are affecting wetlands as minimally as possible, there exists no feasible alternatives to the proposed activities, and that the proposed mitigation plan is reasonable and is likely to succeed.

During the review process, or as a condition of the permit, the MDEQ may require a formal mitigation and monitoring plan. This plan is more detailed than the preliminary mitigation plan and typically includes, but is not limited to, information such as engineered drawings of the impact area and mitigation area, amounts of fill to be added or material to be removed, justification for the proposed activities, alternatives considered, goals and objectives, construction sequencing, planting data, monitoring methodology, and corrective measures.

Upon acceptance of the plan by the MDEQ, the permit may be granted. If granted, the permit typically includes a list of special instructions and specifications relating to supervision, soil erosion, annual reporting, as-builts, easements, system failure, financial assurances, as well as others. Failure to comply with the conditions of the permit subjects the permittee to revocation of the permit and criminal and/or civil action. Permits are valid until the end of the year the permit is granted and extensions are allowed, for a total permit life of 5 years.

If you have any questions regarding permits, or need help with a project or permit that you are currently working on, please contact me.

*Submitted by: Doug Longpre, Wetland and Environmental Specialist*

## Another Grand Ledge Public Schools Project

KEBS, Inc. was contracted to perform a topographical survey for design work in preparation of an expansion at Grand Ledge High School and Beagle Middle School, in cooperation with GMB Architects in Grand Rapids. KEBS, Inc. has completed previous surveying work at the district including Willow Ridge Elementary School, Holbrook Elementary School, and the Marsh Field Baseball diamonds, soccer and football fields, and parking areas. KEBS, Inc. looks forward to working with the district and GMB Architects again and in future projects.

*Submitted by: Jeffrey Autenrieth, PS, Survey Manager, Charlotte Office*

## MSU Construction Projects

The Haslett Construction Department has been keeping busy this year on the good 'ole Campus of MSU. Jobs of interest have been the addition to the Chemistry building, Erickson Hall.

Kares Construction hired KEBS' services to layout the addition to the Chemistry building. The difficulty with this project was the steam tunnel in the area being so close to the foundation wall. The new addition was 30 feet deep and 4 stories high.

Sheeting was driven in the ground next to the steam tunnel to keep it from falling in the basement excavation. Gordon Paaske was KEBS' crew chief in charge of the layout of the walls and also monitoring the movement, if any, of the sheeting. Another unique feature of this project was the curved wall. Good thing Gordon isn't afraid of heights!

Other KEBS' projects on the Campus this year were the Wilson and Bouge Street project, Middlevale Road improvements, Abbott Road entrance, and Parking Lots 6/11. More MSU projects that KEBS have worked on in the past have been the addition to Spartan Stadium and the Spartan Statue project.

*Submitted by: Glenn VanderMolen, Construction Manager, Haslett Office*



## Wetland Humor

### New Simplified Definition of Wetlands (replaces the EPA and USACOE definition)

1. If it's wet, it's wet.
2. If it's dry, it's dry.
3. If it's wet but not overly dry, or dry but not overly wet, refer to items 1 and 2.
4. If it's wet but could be dry, or dry but could be wet, refer to item 3.
5. If it's neither wet nor dry, refer to the atmospheric.
6. If it's wetter than dry or dryer than wet, then it's damp. If it is damper than what would be considered dry, then refer to item 1. If it is dryer than wet but would still be considered damp but not as damp as would be considered wet, or is dryer than a damp wet area, then refer to item 2.
7. For wet areas that are sometimes damp but not dry, and have standing water except when damp, and would not be classified as dry areas that are sometimes damp but not wet, at which time the dampness is dependent upon its wetness, then it would be considered a damp wet area which is not the same as a bay (because a bay is a bay), but be classified as a damp dry area that is sometimes wet, but not enough to be considered a river (because a river is a river), but wet enough to be considered damp, which is not enough to be considered wet, so it is dry (item 2).
8. For dry areas that are sometimes damp but not wet, and don't have standing water except when wet, and would not be classified as wet areas that are sometimes damp but not dry, at which time the dampness is dependent upon its dryness, then it would be considered a damp dry area which is not the same as a lake (because a lake is a lake), but would be classified as a damp wet area that is sometimes dry, but not enough to be considered an ocean (because an ocean is an ocean), but is dry enough to be considered damp, which is not enough to be considered dry, so it is wet (item 1).
9. If any doubt occurs about the wetness or dryness of an area, or uncertain if water occurs in other forms than H<sub>2</sub>O, contact your local wetland specialist.



- Author Unknown-

*Submitted by: Doug Longpre, Wetland and Environmental Specialist*

## Site Data Preparation

One of KEBS, Inc.'s newest services is now being offered to Contractors who are using the latest technology utilizing GPS (Global Positioning Systems).

There are a handful of Contractors that are using GPS on their bulldozers and excavators. Most of them are using the brand Topcon Machine Control which allows the operator of the machine to get a potential site to proposed finish grade within an inch or two by using GPS masts mounted on their machines and what looks like a six inch TV screen on their dashboard that shows them the site, where they are at on the site, and the cut and fills that need to be obtained. Then they move or fill the area they are working in with virtually no grade stakes on the site.

This is where KEBS, Inc. comes in. In order for the contractor to get the proposed site information, they must have a digital model of the proposed site that can be uploaded into their Machine Control units. KEBS, Inc. can supply the contractor with the necessary uploadable files needed for this. Also, KEBS, Inc. will offer site control which they will set key control points with horizontal and vertical locations on the proposed site so the contractor can calibrate and orientate their GPS so that what they have loaded on their machines will match what is physically on the ground.

If anyone has any questions or if you just want to know more about these new services, please feel free to call myself or Joel Holdcraft at our Haslett office and we will help out in any we can.

*Submitted by: Dave Fitzgerald, Construction Manager, Haslett Office*



Step #1



Step #2



Step #3



Step #4

Step #5 -  
Virtually no  
stakes at this  
point



## Condominium Conversion—Spartan Lodge & Suites

KEBS, Inc. is working with Oade Stroud & Kleiman, P.C. on a condominium conversion of the Clarion Hotel located off Highway 127 at the Jolly Road exit in Lansing, MI. The development will create over 100 condominium units of luxurious suites and rooms. Other amenities include a professionally managed hotel rental program, indoor Olympic size pool and spa, fitness center, restaurant and lounge area.

Creating the condominium documents begins with the completion of an ALTA/ACSM Land Title Survey of the property by locating utilities, buildings, parking, and other improvements. The next step is comprised of measuring and identifying unit locations, general common elements and limited common elements located within the building. Condominium drawings consisting of a cover sheet, survey plan, site plan, utility plan, and floor plan are produced from this information to create the Exhibit B Documents for the Master Deed. The Exhibit B Documents and the Master Deed are then sent to the County Register of Deeds for recording.

A similar project development called Waterford Estates Lodge in the Notre Dame campus area can be seen at [www.waterfordestateslodge.com](http://www.waterfordestateslodge.com).

Visit [www.spartanlodge.com](http://www.spartanlodge.com) for updates and information on the project.

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



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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.*

## **Concrete Slab Curl**

Curling, or lifted edges on the slab, is one of the most recognized and preventable symptoms of poor concrete curing of a concrete slab. During the finishing operations and initial curing of the concrete mix, the slab will behave in a plastic manner. The longer the concrete is kept in this plastic state, the more stable the finished product will be. The key to prolonging the plasticity is to keep the concrete in a moist-cured condition throughout the curing time. If excess drying occurs on the surface of the slab during this critical initial curing time, the concrete is prone to curling.

The performance of any concrete product depends upon proper preparation, placement, and finishing techniques. All too often, we see a contractor arrive at the site, place the concrete, and head for the next job. The finishers remain with the slab just long enough to provide a smooth surface and then also move on. While this may be a profitable and efficient way of working, the concrete will benefit greatly from a few intermediate steps.

Prior to ordering the concrete to a site, the base material should be properly prepared. This may involve compaction and moisture conditioning to provide a stable platform for the concrete to set on. A granular base material that has been graded and left open to the weather may be saturated or excessively dry. A surface-saturated dry condition is optimum for the concrete to be placed on. A dry base material will wick moisture from the fresh concrete and inhibit the moist curing process. A saturated base material may exaggerate the differential drying between the top and bottom of the slab and possible cause structural instability.

Many projects will include specifications for the slump and water/cement ratio of the concrete mix. A concrete mix that exceeds these specifications is more likely to curl as a result of a weakened surface paste. A high slump may allow the stronger aggregates to be pushed further below the slab surface during finishing. A high water/cement ratio may result in excess bleed water as well as a weaker concrete than specified. Water added during finishing operations must be avoided due to the resulting dilution of the surface cement paste.

Moist-curing after the finishing operations is critical to the ultimate strength as well as the quality of the final product. If the surface of a slab is not immediately covered or kept moist, evaporation will allow the still-plastic concrete to dry excessively on the surface and result in curling. Even if excessive curling does not occur, up to 50% of the potential compressive strength of the concrete may be lost. Plastic coverings, fogging, and sprayed-on membranes are all effective means of keeping the surface of the slab moist. The length of time for moist-curing depends upon a particular concrete mix, but at least one week will be beneficial. An experienced technician or engineer can help address specific issues for a project's concrete placement. Preparation, placement, and curing techniques enhance the looks, durability, and performance of any concrete product.

*Submitted by: Brian Swenson, Senior Soils Technician, Soils Office*