



# IN THE TRENCHES

## From the President's Desk

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Greetings LICO Members,

As I type this letter, the sun is shining and we are just days away from half load restrictions being lifted in most parts of Ontario. With the winter that never came behind us and our faith in the Farmer's Almanac up in the air, it is now finally dry enough to get back in the fields. The 2016 Survey of Agricultural Drainage tubing numbers are in, and there was just shy of 175 million feet sold in Ontario last year. Compared with 2015's sales, this is an increase of almost 10 million feet! Most contractors suggest that they have enough work to keep them busy this spring, and by all accounts the fall will be another strong one.

The LICO Executive met on April 19, and amendments/updates to the Drainage Guide, and possibly parts of the Agricultural Tile Drainage Installation Act and Regulations, are on the table once again. We're looking for input from all LICO members regarding content that needs to be revisited, revised, changed, removed, and or updated. There have been new practices and equipment have been adopted by many contractors, and the current Drainage Guide and Draining Act may not accurately reflect these industry changes. Please call me at 519-535-4423 or forward any and all suggestions to [turveyj@gmail.com](mailto:turveyj@gmail.com) so we can initiate the updating process when the Board meets again at the end of June.

Just a friendly reminder, don't miss out on a FREE LICO JACKET! The extended deadline to order your complementary 60th anniversary LICO jacket is May 31st. While we have received several orders from the membership, there are many more who have yet to place their orders. Every LICO member is eligible for one coat, and additional jackets can be purchased. Please see further details in this newsletter regarding how to place your orders.

As another reminder, we are looking for suggestions, thoughts and ideas for the convention in January. In particular, we'd like to hear from you regarding your preferences for banquet entertainment, the Ladies' Program and any other 60th anniversary ideas or suggestions that you may have make it special.

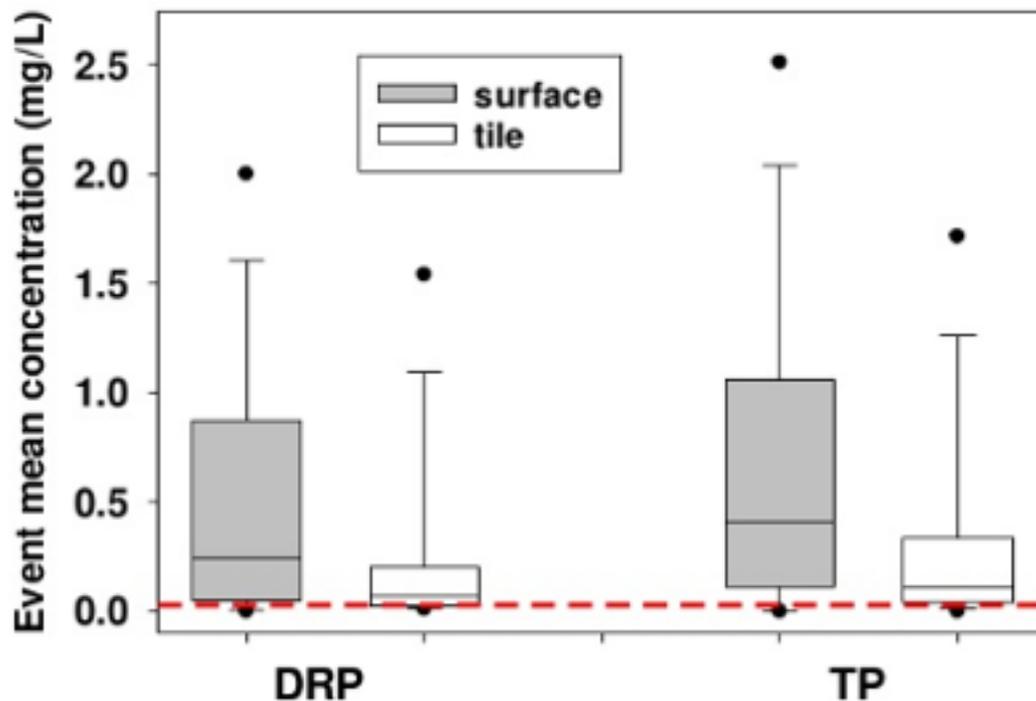
Here's to a safe and solid spring tiling season! Bury every foot you can before you're chased out of the fields by the seeders and planters!

Best regards,  
Jamie Turvey

**Agricultural Drainage: A Phosphorus Best Management Practice!** - Peter Johnson Environmental Advocate, LICO

Often in conversations with policy makers, and even sometimes with farmers themselves, tile drainage of agricultural land is pointed to as one of the causes of phosphorus pollution in the Great Lakes. Nothing could be further from the truth!!! We owe it to our clients, to policy makers, and to the general public, to change this perception. In order to do this, we need to understand why drainage is a Best Management Practice, and make sure to install them as such.

Recent research by Dr. Kevin King of USDA/ARS in Ohio clearly shows that both total phosphorus (TP) and dissolved reactive phosphorus (DRP) levels are lower in tile flow than in surface flow (Figure 1). This concurs with early findings from research here in Ontario by Dr. Merrin Macrae (University of Waterloo). The soil acts as a filter, removing phosphorus (P) from water that passes through it. Thus the more water that we can get to move through the soil profile, the better chance we have to lower the phosphorus content. This is no different than passing water through a wetland or a buffer strip. Get the water to move through something that has affinity for phosphorus, and thus reduce the P content of the water that moves downstream.



Of course, the water MUST move through the soil profile in order for the phosphorus to be removed. This points out several potential pitfalls: preferential flow, where wide cracks exist in dry clay soils, or worm channels connect the surface to the tile, allow direct flow to the tile and thus no reduction in phosphorus. There is little we can do about these situations, other than be sure to manage appropriately if manure is applied. It also points out why very high P soil tests cause issue with phosphorus in tile flow: soils that already have high P levels are not very efficient at removing any phosphorus from water that moves through the soil. Thus the reduction in phosphorus content is minimal in soils with very high P levels, if any at all.

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## **Agricultural Drainage: A Phosphorus Best Management Practice!** - (Cont'd from Pg. 2)

What has this got to do with tile drainage installation? Surface inlets! Growers are loath to let water pond, or stand, for any length of time on their fields. Often, if there is an area that ponds, a request will be made for a surface inlet, either a blind inlet (sometimes called a French Drain) or a Hickenbottom. As soon as one of these structures is installed BELOW GRADE, it is a direct inlet for surface water into the tile, and eventually into the watercourse. Proper installation would place the inlet such that water would pond for 24 hours from a 1" storm. This is a compromise: the crop should not be damaged significantly from waterlogging for a 24 hour period, and it allows for a greater proportion of the surface water to move through the soil matrix, and reduce P concentrations in the drainage water. It is not a perfect solution, but allows for maximum crop production with minimal environmental concern.

Surface inlets are one of the main concerns of the Thames River Phosphorus Reduction Collaborative, a major undertaking to reduce the P loadings into the Western Basin of Lake Erie. LICO is part of this group. Be sure that we do our part. Have a discussion with landowners that want surface inlets installed about the impact and proper installation. Make sure that the surface inlet is installed properly, with both crop production and the environment in mind. Let's keep agricultural drainage where it should be: a Best Management Practice to remove phosphorus. Don't let it be a part of the phosphorus problem.

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## **Update on 2017 Tile Drainage Courses** - Tim Brook

During the winter of 2017, OMAFRA offered the Primary and Advanced Drainage Courses required under the Agricultural Tile Drainage Installation Act. Both courses were taught at the Marden Community Centre, just north of Guelph. The Primary Drainage Course was held January 16 to 20, 2017. There were 27 students with 24 receiving a passing grade. Two students opted not to take the exam and 1 was not successful. Of the students attending the course, 24 were from Ontario (mix of drainage contractors, farmers and equipment manufacturers) and 3 other students were drainage contractors from Manitoba. Advanced Drainage Course was held February 6 to 16, 2017. There were 14 students with all receiving a passing grade. The course dates and registration information for the 2018 Drainage Courses will be posted in the September 2017 LICO Newsletter.

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## **Inspirational Thoughts**

The price of anything is the amount of life you exchange for it.

Don't let the noise of other's opinions drown out your inner voice.

Whenever you feel stupid, just remember there are people outside looking for Pokemon.

There's always a lot to be thankful for if you take the time to look for it. For example, I am sitting here thinking how nice it is that wrinkles don't hurt.

The one thing that unites all human beings, regardless of age, gender, religion, economic status, or ethnic background, is that, deep down inside, we all believe we are above average drivers.

Time spent laughing is time spent with the gods – Japanese proverb

Life is a great big canvas and you should throw all the paint on it you can – Danny Kaye

## Did you hear? We've made great improvements to the Agricultural Information Atlas!

We're excited to let you know about the latest updates that we made to the [Agricultural Information Atlas](#) (AIA). What is the AIA? It's the Ministry of Agriculture, Food and Rural Affairs' (OMAFRA) free, easy-to-use online tool that can help you to:

- Develop nutrient management strategies and plans
- Plan tile drainage for your farm
- Develop a farm sketch for Pest Assessment Reports and Bee Yard Registration and other government programs, including the Great Lakes Agricultural Stewardship Initiative (GLASI)

So, what are the changes?

The AIA is now housed on a new platform. If you are a current user of the AIA, you'll need to update your bookmarks to the [new URL](#) so you can find the AIA quickly and easily. Better yet, the AIA is now mobile-friendly. Open it up on your phone or tablet for quick access while you're in the field or on the go.

Our updates include new features and tools, such as:

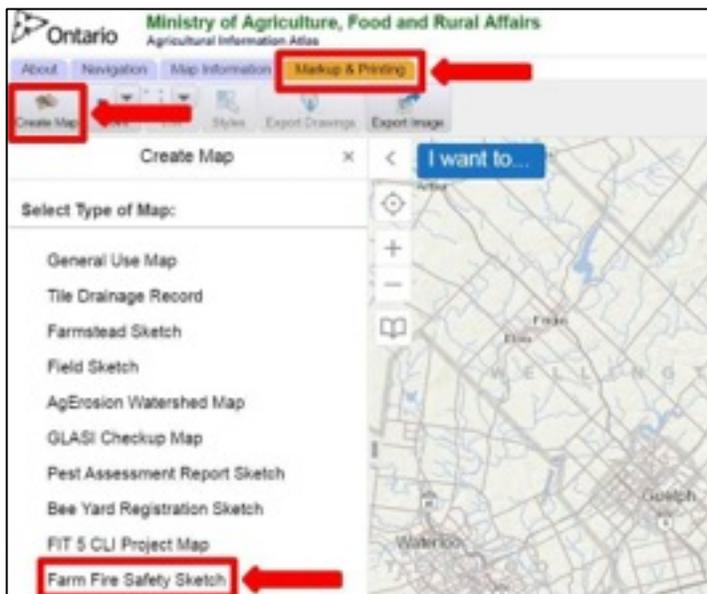
- The ability to add your own user data, such as GPS points or shape files
- Auto-population of 911 addresses
- The removal of the "Label Map" function, and an added "export markup" function (i.e. text and graphics) that allows you to save and bring data back in again at another time
- Right-clicking on the map will give you quick and easy access to GPS co-ordinates, basic markup tools and other functions
- 2015 southwestern Ontario imagery data

We've also added a Farm Fire Safety Sketch template in the "Create Map" section. You can use the template to develop a sketch of your farm showing features like fire risk areas, utility shut-off points, water sources, livestock barns and access routes for emergency vehicles. This sketch can be shared with local first responders to have on-hand in case of a fire or another emergency. Visit the [Farm Fire and Emergency Sketch web page](#) for help with making a sketch for your operation.

Most of the changes we made were based on user feedback. Let us know what you think about the updates and new features at [omafra.gis@ontario.ca](mailto:omafra.gis@ontario.ca) so that we can continue to improve the AIA.

Need help with the AIA? Our [Help page](#) answers some common questions. You can also contact the Agricultural Information Contact Centre at 1-877-424-1300 or [ag.info.omafra@ontario.ca](mailto:ag.info.omafra@ontario.ca).

[ontario.ca/agmaps](http://ontario.ca/agmaps)



**Image:** The Farm Fire Safety Sketch template and other new tools are now available in the Agricultural Information Atlas.



## MY DRAINAGE PROJECT – Is it environmentally sound?

Food production is not optional, thus the use of our most productive land for agriculture is not optional. We have a responsibility to manage land for efficient, reliable production so we can minimize the amount of land required for agriculture. Reliable production is usually associated with land that has a seasonally high water table. Drainage, usually sub-surface drainage, lowers the water table to create a healthy root zone where crops can be produced efficiently. Because soil moisture on these soils usually remains within reach of crop roots, food can be produced reliably and efficiently.

As we consider new drainage projects or drain alterations, we also have a responsibility to consider whether or not our project will be environmentally sound. There are many aspects to this decision and sometimes net effects will determine our decision. For example:

### IS THERE AN EXISTING ADEQUATE OUTLET CHANNEL?

This should be confirmed by your Conservation Authority (CA), your drainage superintendent and a licensed drainage contractor. If not, can a channel be constructed in a way that minimizes impact on downstream aquatic life? If an existing water course needs to be altered to provide outlet can the work be organized to minimize instream aquatic damage?

### COULD THE PROJECT AFFECT A WETLAND?

It is always better to increase the productivity of existing cropland than

to venture into wetlands or natural lands. If there is no way to avoid these environmentally sensitive areas than consult your CA and look for ways to provide off-setting environmental benefits.

Will the project use surface water inlets connected to sub-surface drains? These inlets (catch basins, riser inlets and blind inlets) direct sediment, nutrient, bacteria and pest control products into drain pipes and those drains are then blamed for degraded water quality. Too often inlet installation is the outcome of tillage degraded soil and compaction. This interferes with normal percolation and filtration of water that would otherwise move down through the soil to the drainage system. Clean water begins with good soil management.

### WILL THE PROJECT REDUCE GROUNDWATER RECHARGE?

Soil that contributes to significant recharge is referred to as having "natural" drainage. If the topsoil has been degraded by intensive tillage then occasionally water infiltration will be slow resulting in increased surface water runoff and reduced recharge. Improved soil management rather than drainage can improve infiltration so recharge is not affected.

### WILL SUB-SURFACE DRAINS INCREASE WATER POLLUTION?

Drains are installed clean and will remain so if they are managed with care. Remember that the soil filters out a significant amount of agri contaminant before water reaches a drain pipe.

Without drains a much larger amount of contaminant would leave a field in surface water runoff or infiltrate to ground water.

### WILL SUB-SURFACE DRAINS INCREASE DOWNSTREAM PEAK FLOW?

Because it takes time for water to infiltrate to drain pipe, sub-surface drainage reduces peak flow and extends flow time in waterways. The use of water and sediment control basins when combined with no-till can have the same effect without reducing water quality. If potholes are drained the water would add to flow. If the system is connected to straight outlet channels that would accelerate flow and increase peaks. Research in Ontario shows that generally cropland drainage does not cause a net change in watershed hydrology.

### DOES DRAINAGE HAVE OTHER ENVIRONMENTAL EFFECTS?

The drainage of "wet" cropland can reduce nitrous oxide emissions. Drainage is often necessary to allow the use of no-till, which reduces organic matter oxidation and thus carbon dioxide loss. Both gasses contribute to global warming.

We must take seriously the many environmental impacts associated with cropland drainage. By thoughtfully addressing each we can identify best options for food production in harmony with the environment. In identifying these options it is wise to work with our Conservation Authority, our municipal drainage superintendent and a licensed drainage contractor.



The Land Improvement Contractors of Ontario (LICO) is an association of professional drainage contractors and suppliers of drainage pipe and equipment. The focus of their business is soil moisture management to enhance crop production in Ontario.

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## CALENDAR OF EVENTS

January 22 - 25, 2018

January 21 - 24, 2019

LICO Conference

Best Western Lamplighter Inn

591 Wellington Rd,

London, Ontario N6C 4R3



Model truck by Frank Kistner  
auctioned at the Banquet tonight

John Wolfe has donated to LICO a model truck that was built by Past President Frank Kistner. The truck is to be auctioned at the 2018 conference as a fund raising effort to benefit LICO.

Come to the conference prepared to participate in a fun event that will raise money for LICO research projects.