



PONDS 3.3 APPLICATION SUITE RELEASE

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The Florida Department of Environmental Protection (FDEP) is planning to adopt new state-wide stormwater treatment rules for the design of stormwater management systems. The new rules propose to adopt a requirement for no-net-increase in the pre vs post-development nutrient loading in stormwater runoff from a site. The new stormwater rules are based on the research work of Dr. Harvey Harper, Ph.D., PE., of Environmental Research and Design, Inc., which is documented in the following FDEP research report:

Evaluation of Current Stormwater Design Criteria within the State of Florida, Prepared for the Florida Department of Environmental Protection, FDEP Contract No. SO108, June 2007, by Harvey H. Harper, Ph.D., P.E. and David M. Baker, P.E., Environmental Research & Design, Inc.

The new regulations will establish requirements for the calculation of stormwater treatment volumes within the State of Florida which are anticipated to be more stringent than current regulations. It is also anticipated that sizing retention ponds to provide the required treatment volumes will become a more predominant aspect in overall pond design.

Devo Engineering has added a program module to the PONDS Application Suite for calculating the nitrogen and phosphorous loading, and resulting retention pond design requirements, based on the methodology presented in the research report. With the inclusion of the Nitrogen and Phosphorous Loading module, PONDS 3.2 will now be updated to PONDS 3.3. All of the previous features of version 3.2 will be included in version 3.3, along with the Nitrogen and Phosphorous Loading module.

Features of the new Nitrogen and Phosphorous Loading module include:

- Calculation of treatment volume requirements for dry and wet pond systems (including wet/dry treatment train systems).
- Calculation of required retention volume depth for dry ponds.
- Calculation of required wet pond characteristics, including permanent pool volume and maximum pond depth (depth of anoxia). Calculation of required dry pre-treatment retention depth for wet/dry treatment train systems.
- Calculation of pre vs post-development nutrient loadings.

- Design can be based on typical values for nutrient concentration in runoff based on land usage. Alternately, users may manually input known values for nutrient loading.
- The program is structured as a collection of individual calculation pages, ranging from lower level functions (such as lookup functions for typical nitrogen and/or phosphorous concentration in runoff) to higher level functions such as required dry pond retention depth and/or wet pond characteristics (including required permanent pool volume and maximum unaerated depth). These calculation pages can be accessed independently (such as to perform simple lookup tasks) or chained together to solve more complex design problems. These individual calculation pages include the following:
 - ▶ Lookup functions for typical nitrogen and/or phosphorous concentration in stormwater runoff.
 - ▶ Lookup functions for typical annual runoff coefficient
 - ▶ Calculation of annual runoff volume for a single basin.
 - ▶ Calculation of annual nutrient loading for a single basin.
 - ▶ Calculation of pre vs post-development nutrient loading and required removal efficiency for single or multi-basin systems.
 - ▶ Calculation of required dry pond retention depth.
 - ▶ Calculation of required dry vs wet pond efficiencies in a wet/dry treatment train system.
 - ▶ Calculation of wet pond characteristics.
- ▶ Templates are provided to solve the most common design problems.