

WATER OUALITY STUDIES PROVING THAT BMPs ARE WORKING

One way to protect the quality of our water is to study the methods used to reduce stormwater pollutants and establish if they are effective. So we did...and so far it's looking good.

As far back as the 1970s, studies in Florida have indicated that urban stormwater runoff was a major contributor to declining water quality in streams, water bodies, bays and close shore estuarine systems. Florida was the first state to require treatment of stormwater runoff, using grass swales, wet/dry detention lakes, pervious pavement, aeration, and other methods to filter contaminants from new developments. Water quality monitoring programs have shown that certain methods, or Best Management Practices (BMPs), are effective in removing pollutants and reducing the negative effects of stormwater runoff on our environment.

The Florida Department of Environmental Protection (FDEP) has been instrumental in funding efforts directed towards better understanding how the various BMPs actually perform in the diverse communities where they are used. The work is essential in progressing towards effective and proven water quality treatment methodologies.



Tim Bailey preparing the data sonde to be installed 10' beneath the pond surface.

For the last five years, Johnson Engineering has collaborated with FDEP, The Bonita Bay Group and, most recently, Florida Gulf Coast University's (FGCU) Inland Ecology Research Group, conducting various research projects to evaluate how effective these BMPs are in treating water quality. To date, we have performed multiple studies throughout Southwest Florida, including:

- Green Roof Study Shadow Wood Preserve, Fort Myers, FL
- Littoral Planting Study - Bonita Bay, Bonita Springs, FL
- Long Term Discharge Study Lee & Collier Counties (ongoing)
- Pervious Pavement Study Shadow Wood Preserve, Fort Myers, FL
- Aeration Studies The Brooks, Bonita Springs, FL

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. coordination experience from many well known water resources transportation and development projects.

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PEOPLE & PROJECTS: ON THE MOVE

Dana Hume, P.E. Development group,

Department of

Environmental and

Civil Engineering

Advisory Board.

has been appointed to serve on the Florida Gulf Coast University



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joins our Water Resources team and will be working on surface water management projects. His prior groundwater and development knowledge will be beneficial for clients.

The findings for the recently completed Aeration Study at The Brooks residential golf course community were recently presented at the CHNEP Charlotte Harbor Watershed Summit and at Florida Gulf Coast University's 10th Annual Research Day.

Our team studied how aeration affects the water quality in four wet detention ponds of various depths. Wet detention ponds are the preferred method of stormwater treatment in South Florida and the need for fill materials has driven excavations deeper. The low oxygen conditions at these depths can release harmful phosphorus and metals from sediments. Local regulations will often require the use of aeration systems for ponds with depths greater than the standard twelve feet. Using submersible data sondes, portable multi-parameter meters and traditional grab samples, our team collected water quality data to be analyzed.

The results indicated the aeration had a positive effect on water quality through destratification and stabilization of the dissolved oxygen levels at greater depths. However, we found significant changes in the seasonal and annual patterns of the nutrient parameters, which were independent of aeration treatment. These nutrient concentration parameters appear to be driven partly by management activities both in the lakes and adjacent watersheds.

Scientists do not fully understand the complex physical, chemical, and biological systems of wet detention ponds and further study is warranted to better understand their behaviors. Our team has recently begun analysis on how groundwater interacts with surface water systems, which should get us one step closer to connecting the dots.

One of the most encouraging findings from the collaborative efforts has been that large state agencies can work effectively with private developers, consultants and the academic community for the long term benefit of Florida and its residents.

For more information on the above mentioned collaborative studies, please visit www.johnsongis.com/htm/WQ_ResearchProjects.htm.

RECENT LEGISLATION PASSED ALLOWING FOR PERMIT EXTENSIONS - HOUSE BILL 7207

Permit Extensions (Two Years)

All permits issued by DEP and WMD with expiration dates of 1/1/12 to 1/1/14 may be extended and renewed for two years after the previous date of expiration. This includes any local government issued development order or building permit, including certificates of level of service (COA).

- This extension is ADDITIONAL to any existing permit extension.
- Statutory extensions may not exceed four years total.
- Commencement and completion dates for corresponding mitigation are extended.
- Applicants/Permittees must notify the agency in writing by December 31, 2011.
- Permits extended continue to be governed by the rules in effect at time of permit issuance.

This includes any local government issued development order or building permit, including certificates of level of service (COA).

DRI Extensions (Four Years)

- All commencement, phase, buildout, and expiration dates for projects that are currently valid DRIs are extended for four years regardless of any previous extension.
- The four-year extension is not a substantial deviation, is not subject to further DRI review, and may not be considered when determining whether a subsequent extension is a substantial deviation.
- The developer must notify the local government in writing by December 31, 2011 to receive the extension.

For more information on how we can help process your extensions, contact Laura DeJohn at 239.280.4331 or ldejohn@johnsoneng.com.

WE'VE GOT AN APP FOR THAT - GET MORE OUT OF YOUR iPHONE/iPAD



These applications allow you to access and view your project specific data layers on your mobile device, and see your current position relative to those layers with an aerial background using your device's GPS location information. Mobile maps are also viewable using standard desktop web browsers.

Data layers vary from point based features to linear or polygon features. Our team currently employs this technology to assist field operations for environmental/species mapping, well locations and stormwater facilities.

If you think the advanced Mobile Mapping technology would be helpful to your business contact Mike Lohr, P.S.M. at 239.461.2404 or mlohr@johnsoneng.com. 🗖

LEESAR FACILITY BOOSTS JOB MARKET & REVOLUTIONIZES HEALTHCARE DELIVERY PROCESS

The new LeeSar, Inc. regional service center will bring more than 100 new positions to Fort Myers and will provide essential and efficient support to the major hospitals throughout Southwest Florida, and beyond.

In the healthcare industry delivering patient care is the utmost LeeSar efficiently utilize the site priority. Accomplishing this with a limited budget, time and staffing with deviations granted by the restraints can be difficult and stressful for healthcare leaders. The City of Fort Myers to retain locally based Florida non-profit corporation, LeeSar, Inc. is delivering and use existing parking relief to the region's medical facilities and changing the dynamic in the areas, retain mature trees, industry by moving non-patient care services out of the hospital. and optimize the existing stormwater management, utility infrastructure and

LeeSar is a supply chain management service that provides purchasing, processing, assembling and distribution of critical supplies 24-hours a an existing electrical power building day, seven days a week to the major hospitals of Lee Memorial Health that remain on the site. System, Sarasota Memorial Health Care System, Lee County EMS and other facilities. Moving these non-patient care services out of the The facility is anticipated to provide a total of over 300 jobs. hospital allows for additional space for patients, reduces inventory & operating costs, and most importantly, allows providers to focus on of which over 100 will be new patient care, rather than preparing for their arrival. positions. As the new center of

operations, the company will continue to provide A groundbreaking ceremony recently occurred in preparation for this specialized surgical instrument repair, acquire and new 23-acre, 205,000 square foot state-of-the-art facility, at the former distribute medical supplies, package pharmaceuticals, site of the Southwest Florida Regional Medical Center at the corner of supply custom surgical packs using a patented sterilization method, Evans Avenue and Winkler Avenue in the City of Fort Myers. Johnson and manage food preparation services. The facility will also house Engineering provided surveying, planning, landscape architecture and centralized purchasing, contract management, and administration civil engineering services to construct the facility, which will include offices. light industrial uses (distribution, sterile processing, cook/chill) and administrative offices. The combination of uses necessitated a rezoning The new regional service center brings a boost to the area, not only

from the CI Commercial Intensive designation to PUD, which was by providing services more quickly and efficiently to the region's major granted by City Council in November 2010. hospitals, but through its economic impact as well. The Winkler and Evans corridors suffered the loss of the activity and associated Johnson Engineering performed the permitting associated with economic impact when Southwest Florida Regional Medical Center demolition of the hospital, which sat abandoned since 2009, and helped closed. LeeSar's influx of employees will help local businesses like shops LeeSar minimize costs by securing an estimated \$1.9 million in impact and restaurants, and will also spur additional business development fee credits by redeveloping the site of the pre-1985 Medical Center for the facilities and enterprises that support LeeSar's supply chain within five years of demolition. Johnson Engineering further helped management functions.









ACCURATE ANALYSIS REDUCES PUMP SIZE AND ENERGY NEEDS

Most of us don't need to worry about calibrating our hydraulic models, nor do most of us even know what this means. As citizens, we just assume the maze of utilities beneath us is working properly and flowing as it should. However, that's one of our jobs here at Johnson Engineering: to work closely with utility providers to analyze these systems and provide guidance for future upgrades. This is exactly how we are helping the City of Fort Myers.

In an effort to be proactive, the City of Fort Myers Public Works department hired Johnson Engineering's utilities team to evaluate and provide recommendations for upgrades on one of its critical wastewater pumping stations servicing the City's riverfront area. Instead of performing a typical single pump down test to establish flow and pressure at one moment in time, our utilities engineers recorded flow and pressure for a period of one week. To do this, pressure transducers were installed on the discharge piping to record pressure on the force main system, and low pressure recording transducers were installed in the wet well to monitor water levels. The data allowed the team to establish an accurate system curve and provide for a higher level of confidence with model results.

With the accurate data, our team provided recommendations for improvements that will ultimately make the station operate more efficiently. Taking the guessing game out of the equation and obtaining true readings enabled us to select pumps that reduced the station's total horsepower from 140hp to 80hp. This will result in reduced energy and maintenance costs.

For more information on how we can help calibrate your hydraulic model, contact Michael Dickey, P.E. at 239.461.2455 or mdickey@johnsoneng.com. ■





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