

**FELLSMERE WATER CONTROL DISTRICT
ANNUAL ENGINEER'S REPORT
MAY, 2016**

We are pleased to submit this annual engineer's report as a yearly summary of the engineering related activities involved in the operations and functions of the Fellsmere Water Control District (F.W.C.D.), as required under Chapter 298 of the Florida Statutes.

CLIMATOLOGICAL REVIEW

The 2015 Atlantic Hurricane Season was a slightly below average season featuring eleven named storms, in which four reached hurricane status. It officially began on June 1st and ended on November 30th. These dates historically describe the period each year when most tropical cyclones form in the Atlantic basin. However, the first named storm, Ana, developed nearly a month before the official start of the season, the first since 2012's Beryl and the earliest since 2003's Ana. The season ended with the dissipation of Kate eighteen days before the official end.

Overall, the Atlantic Hurricane Season produced eleven named storms, including four hurricanes (Danny, Fred, Joaquin and Kate), two of which, Danny and Joaquin, became major hurricanes. Although no hurricanes made landfall in the United States, this year, two tropical storms – Ana and Bill – struck the northeastern coast of South Carolina and Texas, respectively. Ana caused minor wind damage, beach erosion, major flooding in North and South Carolina and one direct death in North Carolina, and Bill produced heavy rain and flooding while it moved across eastern Texas and Oklahoma.

The National Oceanic and Atmospheric Administration (NOAA) scientists credit El Niño as the leading climate factor influencing both the Atlantic and Pacific seasons this year.

NOAA's early prediction of above normal precipitation and below normal temperatures for the 2015/2016 winter season has held true for precipitation but not for below normal temperatures. Substantial above average rainfall has occurred through the normal dry season. Water stages in wetland areas, ponds and soil moisture remain high through the "normal" dry season to date of this report.

Landowners within the F.W.C.D. have, gratefully, survived another hurricane and winter season without the ravages of a major tropical storm or freeze event.

Rainfall distribution and intensity across the limits of the District varies significantly during any given rainfall or storm event.

Total rainfall as measured at the F.W.C.D. office/shop complex for the Year 2015 totaled 63.79 inches, nearly 12 inches above the long term average annual rainfall. Rainfall recorded so far this year for January (10.17"), February (3.06"), March (3.06") and May (2.25"). Only within the last two weeks of May, have we begun to witness the effects of a normal dry season.

All being said, as reported above, weather-wise, the F.W.C.D. has had a very good year.

MAY 14, 2015 ANNUAL LANDOWNERS AND BOARD OF SUPERVISORS MEETING

At the May 14, 2015 annual landowners meeting, Michael Monroe was re-elected to the Board of Supervisors of the District for a three year term.

At the following Board of Supervisors organizational meeting the following officers were elected/appointed to serve for the following year.

President	Richard Carnell
Vice-President	Mike Monroe
Secretary	Joyce Hertel
Treasurer	Rodney Tillman
Deputy Secretary	Dawn Cosner
Deputy Treasurer	Judy Warga

F.W.C.D. ANNUAL PERMIT SUMMARY

Twelve (12) permit applications (Numbers 143-15 through 154-16) have been submitted since the prior annual engineer's report.

Six (6) permit applications have been submitted, reviewed, approved and issued since last year's Annual Engineer's Report.

The six permits issued to various landowners within the District include: Three (3) for outfall/discharge culverts connecting into District canals; two (2) permits issued for new driveway culvert crossings; and, one (1) permit issued for replacement of existing driveway culvert crossing.

Six (6) remaining permit applications have been submitted and remain under review pending receipt of requested additional information from the Permittee, or their Consultants, assuring compliance of proposed projects with District criteria and permit conditions. These six permit applications include: Two (2) from proposed NuTerra Organics Recycling Facility, including site plan approval; three (3) permit applications from Parabel Company for culvert crossing and site plan approval; and, one (1) from City of Fellsmere for proposed North Lake Stormwater Treatment Facility.

The permit application for the proposed Fountains of Fellsmere project remains open. The permit application originally included the North Regional Stormwater Lake, however the City of Fellsmere took ownership of the land on which the North Regional Lake is located and submitted a FWCD permit application as a stand-alone project. We expect that the Fountains of Fellsmere project will be resubmitted to FWCD sometime in 2016.

Another on-going permit process is for the modification of the proposed Florida Organic Aquaculture site plan. The original permit was issued in 2013 and work was started. The F.O.A. applicant/developer decided to revise the plan shortly after starting the work and submitted a permit modification request with plans and calculations prepared by a new Engineer, The Milcor Group, Inc. We have reviewed plans and issued "request for additional information" letters for multiple submittal revisions. The permit modification has not been issued. This is due to the lack of an adequate response to the FWCD concerns about the potential discharges into the FWCD system of the salt water used in the shrimp raceways and the developer's on-going redesign of the site plan. The project construction proceeds with monthly site inspections by the Milcor Group and status updates to Carter Associates. A perimeter berm, controlled discharge, and preservation of the flood plain storage are FWCD requirements that are emphasized to the applicant on a regular basis.

A permit application from the F.D.O.T. from 2012, pertaining to replacement of the I-95 Bridge over the Main Canal remains open pending resolution of disputed design and construction issues. The F.W.C.D. requires additional fill and rock rip rap slope stabilization treatment for the transition sections of the realigned F.W.C.D. maintenance road. This requirement is to maintain a safe maintenance road under the bridge for FWCD. The contractor has demobilized without constructing the required rip rap. Therefore the as-built condition is not acceptable and through the F.W.C.D. Attorney, the matter is being scheduled for trial.

CITY OF FELLSMERE (C.O.F.)

The City of Fellsmere continues to develop strategies and implement improvements to its street and drainage infrastructure, including additional paving and drainage grants and developing a city-wide drainage swale plan for driveway culverts. The City has established a Stormwater Utility to aid in funding the projects.

The C.O.F. Stormwater Management Utility Program primarily addresses the secondary drainage system within the City and water quality issues mandated by other jurisdictional agencies, but does not overlap or duplicate the responsibilities of the F.W.C.D. in the maintenance and operations of the District's primary drainage ditches, canals and flood protection functions.

The City of Fellsmere completed the Fellsmere Master Stormwater Plan in late 2012. Currently two of the Master Plan regional lake systems are in the design phase. The City of Fellsmere retained Carter Associates in the spring of 2015 to prepare construction plans and obtain the permits to construct the South Regional Lake. As noted above, the City of Fellsmere has retained the Milcor Group to design and permit the North Regional Lake.

The City of Fellsmere has also completed the design and permitting associated with the Fellsmere CDBG Phase 6 Project. This project includes the paving and drainage improvements along Wyoming and South Carolina Avenues and Hickory and Pine

Streets. The CDBG Phase 6 project has been approved for Grant funding and construction is expected to start during the summer of 2016.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT (S.J.R.W.M.D.)

The construction of the new levee along the eastern boundary of S.J.R.W.M.D. property acquired from Fellsmere Joint Venture (FJV) is nearing completion. The levee is part of the "Fellsmere Water Management Area" which is about 95% completed. This levee will be the east levee of the newly created stormwater management area and will serve as the new western levee of the F.W.C.D.

The levee is reported to be constructed to U.S.A.C.O.E. standards, and as such, can be designated as a U.S.A.C.O.E. certified levee when the project is completed. The U.S.A.C.O.E. certification is important for F.E.M.A. flood zone mapping, as the levee will be recognized for flood protection and result in F.W.C.D. landowners receiving reduced flood insurance rates. The F.E.M.A. flood insurance rate maps will not be changed to recognize the benefits of a levee protected flood zone until a "certified levee system" is completed around the entire F.W.C.D. levee system. The balance of the perimeter levee system including the north, south and portion of the east boundary will have to be upgraded and certified to complete the F.E.M.A. certification process. At some point in the future, we anticipate this land will be developed and the benefits of the F.E.M.A. certification may justify the cost.

The S.J.R.W.M.D. Governing Board has budgeted monies for a pilot project within the FWCD. The land owner and the SJRWMD staff are currently in contract negotiations. If constructed the dispersed water storage project could provide significant reductions in the volume of water being discharged to the IR Lagoon.

WATER QUALITY IN MAIN CANAL

Representative Water Quality sampling for the F.W.C.D. are taken nearly quarterly (approximately every three months) at County Road 507 (Babcock Road) bridge from the Main Canal. Currently, and for some time now, the sampling, field analyses, and laboratory analyses are conducted by Pace Analytical Services, Inc. out of Pompano Beach, Florida. The discussion of Water Quality for this report is based on samples taken during: Early June 2015, Late August 2015, Early December 2015, and mid-February 2016.

Over the past year, the F.W.C.D. Water Quality results indicate some significant exceedances of the acceptable Florida Nutrient Numeric Threshold Limits. These exceedances occurred during the warmer months of the year when more runoff is experienced and the concentration of dissolved oxygen in the water is at its lowest of the year. The Nutrient Numeric Threshold Limit for dissolved oxygen (D.O.) saturation is a minimum of 38 % for the Florida Peninsula (within which the District is included). For this year's reporting, the dissolved oxygen (D.O.) saturations were as follows:

- Early June = 46.9 % saturation, which was 23% above the minimum Limit
- Late August = 30.4% saturation, which was 20% below the minimum Limit
- Early December and mid-February were both above 70% saturation, well above the Limit

A significant increase and exceedance in Total Phosphorous was detected in all results which appear accurate. The Nutrient Numeric Threshold Limit for Total Phosphorous in the Florida Peninsula region is a maximum concentration of 0.12 mg/l. The June 2015 report for total phosphorous was 0.064 mg/l (I), with the (I) meaning below the Practical Quantitative Limit (PQL) of the lab test. It would be uncommon for a summer canal grab sample to be this low in phosphorous and therefore its accuracy is questionable. Total Phosphorous concentrations for the remaining samples were as follows:

- Late August = 0.33 mg/l = 275% above Threshold Limit
- Early December = 0.23 mg/l = 192% above Threshold Limit
- Mid-February = 0.18 mg/l = 150% above Threshold Limit

The Nutrient Numeric Threshold Limit for Total Nitrogen in the Florida Peninsula region is a maximum concentration of 1.54 mg/l. This past year, three of the quarterly samples were near the Threshold Limit, with the Late August sample exceeding the Threshold Limit by 15%.

As of now, the F.W.C.D. is considered a non-MS4 Facility, not subject to NPDES permitting. Neither is the District included within an FDEP "Water Body Identification Number" (WBID) for the study of impaired state waters. Also, the canals of the District do not meet the FDEP requirements of a "stream" for purposes of interpreting the Florida Nutrient Numeric Threshold Limits, the exclusion of which are defined as follows:

"Streams do not include: (a) **or** (b) ditches, canals and other conveyances, or segments of conveyances, that are man-made, or predominantly channelized or predominantly physically altered; **and** 1) are primarily used for water management purposes, such as flood protection, stormwater management, irrigation, or water supply; **and** 2) have marginal or poor stream habitat or habitat components, such as a lack of habitat or substrate that is biologically limited, because the conveyance has cross sections that are predominantly trapezoidal, has armored banks, or is maintained primarily for water conveyance."

However, the District is an identified Stakeholder in the FDEP 2013 "Central Indian River Lagoon B.M.A.P.", with projects indicating reductions of 82.5 lb/yr of Total Nitrogen and 24.8 lb/yr of Total Phosphorous. It is highly unlikely last year's nutrient readings would indicate even these modest levels of reduction stated in the B.M.A.P.

The following excerpt is from the FDEP B.M.A.P. and is applicable to the F.W.C.D. as a Non- MS4:

3.5.3 Non-MS4s

Paragraph 403.067(7)(b)2.f, F.S., prescribes the pollutant reduction actions required for Non-agricultural pollutant sources that are not subject to NPDES permitting. These “non-MS4 sources” must also implement the pollutant reduction requirements detailed in a BMAP and are subject to enforcement action by FDEP or a water management district if they fail to implement their responsibilities under the BMAP. Load reductions, and the responsibility for meeting them, were assigned to the entity that governs the area generating these non-MS4 urban lands.

Failure to reduce these loadings can result in enforcement action by FDEP under Paragraph 403.067(7)(b)2(h), F.S. FDEP can seek to designate an entity as a regulated Phase II MS4 in accordance with Section 62-624.800, F.A.C. One of the primary designations applies when a TMDL is adopted. FDEP can designate an entity as a regulated Phase II MS4 if the discharges are determined to be a significant contributor of pollutants to surface waters of the state, which can occur when FDEP has adopted a TMDL for a waterbody or segment into which the Phase II MS4 discharges the pollutant(s) of concern. If an entity is designated as a regulated Phase II MS4, it will be subject to the conditions of the Phase II MS4 Generic Permit.

The F.W.C.D. should do everything reasonable to see that the B.M.A.P. reduction goals are met and do all possible to prevent the FDEP from labeling the District as a MS4 Facility.

ANNUAL ENGINEERING RELATED ACTIVITIES

Engineering time during this past year continues to be expended on the non-compliance design and construction issues of the F.D.O.T. Interstate 95 Bridge across the F.W.C.D. Main Canal. This matter currently remains unresolved and Carter Associates, Inc. continues to assist F.W.C.D. and legal counsel in on-going litigation.

Attendance at the public/stakeholders forums as scheduled and conducted by the FDEP to represent and assist the F.W.C.D. in addressing mandates to reduce the pollution currently being discharged into the Indian River Lagoon. During the last year the FDEP completed the process of developing pollution load allocations for each stakeholder. The FWCD allocation based on using the F.W.C.D. jurisdictional area of 1,420 acres was 6,079 pounds of Total Nitrogen, and 867 pounds of Total Phosphorus. The FWCD requested the FDEP to recalculate the allocations based on FWCD r-o-w maps. Carter Associates provided the r-o-w maps and FDEP recalculated the allocations. The revised allocation is now based on 214 acres resulting in 694 pounds of Total Nitrogen and 108 pounds of Total Phosphorus. The allocations will take effect in the adoption of the second five year phase of the Best Management Action Plan. FDEP has notified

stakeholders that the pollution allocations will be necessary due to the less than desirable sea grass inventories obtained recently.

Permitting issues with the Florida Organic Aquaculture project continues to remain unresolved. Technical engineering review and assistance to F.W.C.D. on this matter continues.

Attended a pre-application meeting for the Fellsmere North Regional Lake project and provided FWCD drainage permit requirements to the applicant's engineer. The proposed project includes a Broadway Commercial strip component. The Broadway road drainage system will be re-configured to drain north to the North By-pass Ditch just upstream of the proposed lake. A portion of the adjacent commercial strip area will be connected to the Broadway drainage system and flow to the lake as well. The City of Fellsmere has requested that the SJRWMD allow some commercial re-development areas along Broadway to receive water quality treatment from the lake. This will allow development to occur in the Broadway area without a large percentage of area being dedicated to small stormwater management systems for individual parcels.

FWCD Board of Supervisors authorized Carter Associates to prepare a permit manual. The permit manual was prepared and the draft was reviewed by the Board. On November 12, 2015 the Board approved the permit manual after additions were made subject to approval by the Engineer, Attorney and President of the Board. The final edits are still pending. When completed and adopted the manual will be posted on the FWCD website and will be available for land owners and developers to review.

On-going annual engineering activities include the following:


- 1) Attend all regularly scheduled meetings of the Board of Supervisors and maintain a District Engineering file.
- 2) Remain on daily call to provide technical assistance and information to District personnel, supervisors, landowners and other governmental and public agencies concerning the operations, functions and regulations of the District.
- 3) Continue to provide technical permit review assistance to Superintendent Rodney Tillman, and project consultants, in the submission and issuance of all permit applications to assure compliance with F.W.C.D. policies and requirements.
- 4) Attendance at pre-construction meetings for significant site plan or subdivision type projects in the FWCD. Also, provide limited construction inspection to check compliance with FWCD permit conditions and to minimize the discharge of turbidity from construction sites.
- 5) Review the County wide alternative water supply report.


- 6) Review the quarterly stormwater quality analysis from the District.
- 7) Monitor and review the actions and activities of other jurisdictional agencies and related organizations that may affect the operations and functions of the District.
- 8) Review records and files in preparation of the Annual Engineer's Report as required under Florida Statutes – Chapter 298.

Once again, we are pleased to report that Superintendent Rodney Tillman and his staff, under the direction, guidance and support of the District's Board of Supervisors, continues to maintain and protect the works of improvement of the District, and to provide the landowners within the District a cost-effective level of service for flood protection.

Respectively submitted,

CARTER ASSOCIATES, INC.

By: 
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