

**FELLSMERE WATER CONTROL DISTRICT
ANNUAL ENGINEER'S REPORT
MAY 2019**

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

For the fourth consecutive year, hurricane activity began prior to the official June 1st start of the season, with Tropical Storm Alberto forming on May 25. Alberto made landfall in northern Florida and traveled as far north as the Great Lakes as a tropical depression. The 2018 hurricane season was the first since 2008 to have four named storms active at the same time (Florence, Helene, Isaac and Joyce).

Overall activity in the Atlantic basin in 2018 was above average, with fifteen named storms, eight hurricanes, two major hurricanes and at least \$33.3 billion in damages. This compares to the long-term averages of 12 named storms, six hurricanes, and three major hurricanes. The initial NOAA forecast outlook for the 2018 season called for 10-16 named storms, 5-9 hurricanes and 1-4 major hurricanes. One unnamed tropical depression also formed in 2018.

In terms of Accumulated Cyclone Energy (ACE), which measures the combined strength and duration of tropical storms and hurricanes, preliminary data indicate that the 2018 season was above normal. As a comparison, the 2017 season's ACE was somewhat more than double that of the 2018 season.

Storm Name	Dates	Storm Category at Peak Intensity	Max Wind [mph]	Min. Pressure [mbar]
Alberto	May 25 – 31	Tropical Storm	65	990
Beryl	July 4 – 16	Category 1 Hurricane	80	991
Chris	July 6 – 12	Category 2 Hurricane	105	970
Debby	August 7 – 9	Tropical Storm	50	1000
Ernesto	August 15 – 18	Tropical Storm	45	999
Florence	August 31 – September 17	Category 4 Hurricane	140	939
Gordon	September 3 – 8	Tropical Storm	70	997
Helene	September 7 – 16	Category 2 Hurricane	110	966
Isaac	September 7 – 15	Category 1 Hurricane	75	993
Joyce	September 12 – 19	Tropical Storm	50	997

Storm Name	Dates	Storm Category at Peak Intensity	Max Wind [mph]	Min. Pressure [mbar]
Eleven	September 22 – 23	Tropical Depression	35	1007
Kirk	September 22 – 29	Tropical Storm	60	998
Leslie	September 23 – October 13	Category 1 Hurricane	90	969
Michael	October 7 – 12	Category 4 Hurricane	155 (250)	919
Nadine	October 9 – 13	Tropical Storm	65 (100)	997
Oscar	October 27 – 31	Category 2 Hurricane	105 (165)	970

See attached U.S. National Weather Service 2018 North Atlantic Hurricane Tracking Chart.

Fortunately, the F.W.C.D. and the East Coast of Florida did not suffer any destructive forces of a hurricane during the 2018 hurricane season.

A below average rainfall during the past summer and fall wet season has continued through the current “dry” season.

Rainfall intensity and distribution varies significantly across the limits of the district in any given storm event. The district does not currently maintain or observe rain gauges to determine rainfall dispersement or intensity within its limits. The 2018 total yearly rainfall observed and recorded at the Vero Beach Municipal Airport was 40.51 inches. According to the National Weather Service records, this amounts to nearly ten inches below the normal average rainfall of 51.87 inches for this area.

Please find attached to this report the 2018 Daily Rainfall reported by N.O.A.A., as observed at the Vero Beach Municipal Airport.

Measured monthly rainfall, at the District office, during 2018 is as follows:

January	– 1.21”
February	– 1.0”
March	– 0.30”
April	– 2.12”
May	– 6.10”
June	– 6.77”
July	– 4.02”
August	– 4.15”
September	– 5.43”
October	– 0.5”
November	– 2.46”
December	– 1.85”

Total annual rainfall measured at the District office is estimated to be 35.9 inches for 2018. This amounts to approximately 16" +/- below the long term annual average rainfall (52") for the area.

Observed rainfall during the current dry season through the first three months of 2018 are: January – 4.33"; February – 1.56" and March – 1.67".

During this past winter, F.W.C.D. had a couple of mornings with scattered light frost but did not suffer any freeze warnings or freeze events.

MAY 10, 2018 – ANNUAL LANDOWNERS AND BOARD OF SUPERVISORS MEETING

At the May 10, 2018, Annual Landowners Meeting, Mike Monroe was nominated and re-elected to the Board of Supervisors for a three year term.

At the following Board of Supervisors Organizational Meeting, the following officials 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

FELLSMERE WATER CONTROL DISTRICT ANNUAL PERMIT SUMMARY

Sixteen (16) permit applications (Numbers 187-18 through 202-19) have been submitted since last year's annual engineer's report.

Three (3) of the permit applications are for City of Fellsmere projects, including the South Regional Lake, The Boys and Girls Club, and the 100th Lane Paving Project; the balance of the permit application are for new culvert driveway crossings, utility crossing permits, or for outfall/discharge culverts into district canals.

A resubmittal for the proposed Fountains of Fellsmere project was received by the F.W.C.D. Engineer on May 5, 2017; however, the applicant has not addressed the preliminary comments and the project remains on hold.

The North Regional Stormwater Lake, which is a City of Fellsmere project has been constructed and is operational now. The project is an in-line lake (meaning the ditch widens into a lake) along the North Bypass Ditch and will provide additional runoff water storage and discharge attenuation for the North Bypass Ditch watershed.

Another on-going permit process is for the modification of the Florida Organic Aquaculture site plan. No progress has been made in the last year. The original permit was issued in 2013 and the site work was started. The F.O.A. applicant/developer submitted a permit modification request with plans and calculations prepared by a new Engineer, The Milcor Group, Inc. Multiple submittals and review comments from the F.W.C.D. occurred over several years. The permit modification has not been issued, in part due to the lack of an adequate response to the F.W.C.D. concerns about the potential discharges into the F.W.C.D. system of the salt water used in the shrimp raceways. The FWCD adopted a policy of requiring a land owner approval letter before the issuance of a FWCD permit. A new owner has purchased the land leases and is currently reorganizing the project's operations, financing, and efforts to obtain a land owner approval letter.

Parabel recently completed the first phase of their duck weed production facility just south of Ditch 23 and west of Park Lateral. Based on the review of the as-built survey the site work was not completed as per the approved permit plans. Parabel attended the November Board of Supervisor's meeting and requested additional time to address the non-compliances.

A permit application from the F.D.O.T. from 2012, pertaining to replacement of the I-95 Bridge over the Main Canal continues to remain 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 F.W.C.D. 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 continues through a legal process.

The City of Fellsmere held a pre-application meeting with representatives from the Truviva Company. Carter Associates attending the meeting as representatives of the FWCD and provided permit requirements regarding drainage connections to the District system.

CITY OF FELLSMERE (C.O.F.)

The City of Fellsmere continues to develop strategies and implement improvements to its street and drainage infrastructure, including paving and drainage, flood mitigation 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 Lateral and Sub-lateral drainage ditches, and flood protection functions.

The City of Fellsmere is currently implementing parts of the Fellsmere Master Stormwater Plan, which was adopted in 2012. The Master Plan includes building regional lakes to provide flood storage and water quality treatment. The City of Fellsmere has obtained grant funding to construct the South Regional Lake. This project is currently in the construction phase. As noted

in the Annual Permit Summary above, the North Regional Lake is currently completed and is in the operating phase.

The CDBG Phase 6 Paving and Drainage Improvement Project was completed by the end of 2018. This project includes the paving and drainage improvements north of CR 512, along Wyoming and South Carolina Avenues and Hickory and Pine Streets. Also, a drainage pipe connection from the Ditch 14 (New York) to the North Bypass Ditch was included in the project. This pipe system includes a flap gate and will allow water to be diverted to the larger North Bypass ditch during significant rainfall events.

The City of Fellsmere received a grant to construct a sports field known as the “Meadowsfield Athletic Park” west of the Carter Hall Subdivision. The parcel of land on which the project is located provided flood plain storage before it was filled to construct the athletic fields. The compensating flood plain storage will be provided by constructing a flood storage area on nearby City owned parcels under the Meadowsfield Park Project phase 2.

The City has obtained grant funds to construct a section of the Rails to Trails Project. This section is located along the North Bypass Canal from Babcock Street on the east to a bridge across the Park Lateral Canal on the west and is currently in the design and permitting phase.

The City has obtained grant funds for paving and drainage improvements to the 100th Lane and 100th Place Project. The project is located immediately east of Willow Street and will discharge into the Sub-lateral 12.

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) was completed in 2017. The levee is part of the “Fellsmere Water Management Area” which also is now 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 S.J.R.W.M.D. has agreed to provide a levee certification for the completed section of the levee. To date, the levee certification has not been provided.

The S.J.R.W.M.D. Governing Board has budgeted monies for a dispersed water storage pilot project within the F.W.C.D. The land owner, FJV, and the S.J.R.W.M.D. staff have completed contract negotiations and the dispersed water storage project is currently in the permitting phase. When constructed a pump will redirect water from flowing east to the Indian River Lagoon and discharge it into an above ground impoundment located west of Lateral U. The goal is to provide significant reductions in the volume of water being discharged to the Indian River Lagoon. This results in two benefits, improvement to the water quality of the Lagoon, and secondly additional fresh water is introduced into the St Johns River.

WATER QUALITY IN MAIN CANAL

Representative Water Quality sampling for the F.W.C.D. are taken from the Main Canal

quarterly (approximately every three months) at the County Road 507 (Babcock Road) bridge.

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: the 4th quarter of 2017 through the 3rd quarter of 2018.

The F.W.C.D. water quality results for phosphorus, from the November 2017 (0.13 mg/l) and the August 2018 (0.2 mg/l) samples exceed the acceptable Florida Nutrient Numeric Threshold Limits (0.12 mg/L). The February 2018 sample, however, indicate the results are within the limit, at 0.068 mg/L.

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, the quarterly samples were below the Threshold Limit.

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 conducted by the F.D.E.P as scheduled or by watching the webinar recordings to represent and assist the F.W.C.D. in addressing Basin Management Action Plan (BMAP) mandates to reduce the pollution currently being discharged into the Indian River Lagoon. The pollution reduction allocations to be assigned to F.W.C.D. are currently under review and will take effect in the adoption of the second five year phase of the Best Management Action Plan to be adopted in 2019. The software model used to calculate the loads has been under review by the FDEP and stakeholders over the last two (2) years. The F.D.E.P. has notified stakeholders that the pollution allocations will be necessary due to the less than desirable sea grass inventories obtained recently.

F.W.C.D. Board of Supervisors authorized Carter Associates to prepare a permit manual. On November 12, 2015, the Board approved the permit manual and is posted on the F.W.C.D. website where it is available for landowners 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 the District, 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 F.W.C.D. Also, provide limited construction inspection to check compliance with F.W.C.D. permit conditions and to minimize the discharge of turbidity from construction sites.
- 5) Review the quarterly stormwater quality analysis from the District.
- 6) Monitor and review the actions and activities of other jurisdictional agencies and related organizations that may affect the operations and functions of the District.
- 7) Review records and files in preparation of the Annual Engineer's Report as required under Florida Statutes – Chapter 298.

Rodney Tillman, the FWCD Superintendent for many years officially retired on January 2019. The FWCD Board of Supervisors have entered into a contract with Special District Services to provide some of the District's administrative duties along with Joyce Hertel, another long term District employee who continues to manage the daily office duties.

Once again, we are pleased to report that the District 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.

Respectfully submitted,

CARTER ASSOCIATES, INC.

By: _____
George Simons, P.E. District Engineer
Fellsmere Water Control District
May 8, 2019
Florida Registration #40437
C.O.A. / L.B. #205