

**SEBASTIAN RIVER IMPROVEMENT DISTRICT
ANNUAL ENGINEER'S REPORT
JUNE, 2015**

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 Sebastian River Improvement District (S.R.I.D.), as required under Chapter 298 of the Florida Statutes.

CLIMATOLOGICAL REVIEW

First and foremost, it should be noted the S.R.I.D. has been blessed, for another year, without suffering the devastation of a tropical storm event.

As reported by the National Oceanic and Atmospheric Administration in their 2014 Atlantic Hurricane Summary, the 2014 Atlantic Hurricane Season ended on November 30, 2014 with the 8 tropical cyclones being named in the Atlantic Basin. This is much lower than average, primarily due to persistent, unfavorable atmospheric conditions over the Gulf of Mexico, Caribbean Sea and Tropical Atlantic Ocean.

This unexpectedly low activity is linked to an unpredictable atmospheric pattern that prevented the growth of storms by producing very strong vertical wind shear, combined with increased atmospheric stability, stronger sinking motion and drier air in much of the main hurricane formation regions. Also, the West African monsoon was near to below average, making it more difficult for African easterly waves to develop.

Fortunately, much of the U.S. Coastline, including Florida, was spared this season with only one land falling hurricane (Hurricane Arthur, made landfall in North Carolina on July 4, 2014).

Hurricane Bertha brushed the Lesser Antilles with relatively minor impacts. Hurricane Cristobal's rip currents affected the states of Maryland and New Jersey, resulting in one fatality in each state. Tropical Storm Dolly made landfall in eastern Mexico and triggered flooding conditions. Hurricane Edouard became the first major hurricane of the season and never made landfall, two deaths near the coast of Maryland were attributed to strong rip currents from the storm. Hurricane Fay affected Bermuda, though its impacts were minimal. Hurricane Gonzalo was the most intense hurricane (Category 4) of the season, with destructive impacts in the Lesser Antilles and Bermuda. It caused 5 direct fatalities and at least \$200 million in damage. The last storm of the season made landfall in Central America in late October producing minimal impact.

According to Colorado State University Climatologists Dr. William Gray and Dr. Phil Klotzback, the 2015 Atlantic Basin Hurricane Season will be one of the least active seasons since the middle of the 20th Century. In their extended-range outlook, they note the likelihood of a moderate to strong El Nino will develop in the equatorial Pacific this summer and fall. This pattern, coupled with anticipated cooler temperatures of the

tropical and subtropical temperatures in the Atlantic, is known to suppress tropical storm development in the Atlantic.

The extended range outlook mentioned above may already be challenged with the formation of Tropical Storm Ana off the East Coast of Florida during the first week of May. Ana's formation is the earliest appearance of a named storm in the Atlantic since a previous incarnation of Sub-tropical Storm Ana on April 20, 2003.

As a Tropical Storm, Ana had sustained winds of 50 MPH. When it made landfall just north of Myrtle Beach, South Carolina at 6 A.M. Sunday, (May 10, 2015), winds were at 45 MPH, producing heavy rainfall and storm surges. After making landfall, Ana was downgraded to a Tropical Depression as it moved northward over Eastern North Carolina.

Here's hoping the predicted El Nino forms quickly, that Ana is one of the "few" storms anticipated, and that long range outlook of "a least active hurricane season" is not severely modified through the upcoming 2015 Hurricane Season.

Unlike much of the rest of the United States, the Lower Peninsula of Florida enjoyed a mild winter with the exception of one freeze warning event occurring on February 19th and 20th, immediately following a full moon, when temperatures dropped into the high twenties and low thirties for a few hours.

No specific rainfall data for S.R.I.D. was available at the time of this report.

Rainfall distribution and intensity, across the limits of the District, vary significantly in any given rainfall or storm event. The 2014 total yearly rainfall observed at the Vero Beach Airport was 54.21 inches, and at the Fellsmere Water Control District office/shop complex was 56.61 inches, as compared to the long-term average annual rainfall of approximately 52 inches per year.

With sporadic rainfall events occurring throughout the normal dry season (November through April), soil moisture and water stage conditions have remained above normal precluding any major drought events.

DISTRICT ADMINISTRATOR CHANGE

Robert ("Bob") J. Ulevich retired at the end of 2014 and the S.R.I.D. Board of Directors awarded Special District Services, Inc. a contract to provide Administrative services for the S.R.I.D. Todd Wodraska is the day to day representative from Special District Services assigned to the S.R.I.D.

Following the tragic death of former Co-Administrator of the Sebastian River Water Control District (S.R.W.C.D.) and St. Johns Water Control District (S.J.W.C.D.) in August of 2000, Robert J. Ulevich assumed the position of Co-Administrator of the two districts in November of the Year 2000.

Bob retired from his position as Director of Field Operations-North/Director of Okeechobee Region of the South Florida Water Management District, after over twenty-eight years of service, and was retained jointly by S.R.W.C.D. and S.J.W.C.D. as Co-Administrator of the two local districts.

With his strong academic and professional background in administration, budget/financial management, human resources, engineering, construction, operations and maintenance, and his knowledge and familiarity of local, state and national water management issues, he served the S.R.I.D. exceptionally for fourteen years, prior to retirement in late 2014.

Some of the administrative accomplishments concluded during his tenure include: revision, submittal and approval of current Water Control Plan (formerly known as Plan of Reclamation); conversion of Sebastian River Water Control District to Sebastian River Improvement District; adoption of criteria and applicable procedures for permit applications to use or connect to district facilities; utility construction permits; sale of surplus lands; creation of hydrologic model of the districts system, and website for the district.

Bob's tenure and service with the S.R.I.D. spanned a period of tremendous change in growth, land use changes and mandated water quality requirements, and his administrative abilities and success in addressing and resolving many of these issues, on behalf of the S.R.I.D., should always be appreciated by the landowners within the district.

CANAL MAINTENANCE

The district is currently in the process of planning and performing its annual pre-hurricane season canal maintenance operation throughout the district's lateral and sub-lateral canal system.

These maintenance efforts include the mowing of canal maintenance berms and ditch banks; grinding of exotics and other invasive plant growth; shoal, aquatic weed and garbage removal from canals; removal of hazardous trees from canal banks and berms; and bank restoration as required.

The new District Administrator, Todd Wodraska, has negotiated contracts with the existing key maintenance contractors and a field operations employee to provide continuous field services during the Administrator transition. The on-site contractors perform specific canal and right-of-way maintenance activities. These maintenance activities include clearing, flat mowing, disking and grading of canal right-of-way maintenance berms, to provide for stable and safe access for maintenance and routine inspection activities, as well as bank mowing, long and short reach cleanout work of the district's lateral and sub-lateral canals. The field operations employee provides

coordination and inspection services for maintenance activities and also provides the gate operation services.

WATER QUALITY IN LATERAL C CANAL

Water quality samples for S.R.I.D. are taken quarterly (every three months) from the County Road 510 bridge over the Lateral C Canal.

The S.R.I.D. water quality readings, over the past year, for the most part, indicate a good water quality, with some exceptions. The numeric nutrient thresholds for nitrogen have been met but are close to the upper exceedance levels. The numeric thresholds for phosphorous is a problematic, with two of the five results that we have indicating slight exceedances during the past several quarters.

BASIN MANAGEMENT ACTION PLAN (BMAP)

The F.D.E.P. held the annual Technical Working Group meeting on the status of the BMAP in May 2015 to discuss the progress made in achieving pollution discharge reductions. Stakeholders located north of the S.R.I.D. watershed were given pollution discharge reduction allocation in the first BMAP adoption cycle adopted in the spring of 2013. While many of the stakeholders have achieved the five (5) year pollution reduction goals, more effort is needed. The F.D.E.P. representatives have reviewed and concluded that based on the results of the 2011 and 2013 sea grass surveys indicate that the section of the Indian River Lagoon in which S.R.I.D. discharges will be considered impaired. Therefore, the S.R.I.D. watershed will be included in the 2018 BMAP update cycle as a watershed with a pollution discharge allocation. The F.D.E.P. is in the process of developing pollution reduction allocations for each stakeholder, including the S.R.I.D. which will take effect in the adoption of the second five year phase of the Best Management Action Plan.

The F.D.E.P. will continue to hold annual meetings to review stakeholder progress and discuss new stormwater pollution reduction technologies in the future.

FLOOD INSURANCE RATE MAP MODERNIZATION

The 2012 F.E.M.A. map update for the S.R.I.D. watershed is on hold pending the outcome of an appeal submitted by Carter Associates, Inc. on behalf of the S.R.I.D. The appeal was submitted to Indian River County, who in turn submitted the appeal to F.E.M.A. The basis of the appeal concerns the Lateral D Dike which historically has provided flood protection to the areas of S.R.I.D. lying to the east of Lateral D and was recognized as such on the earlier F.E.M.A. F.I.R.M. maps. The preliminary revised F.I.R.M. maps that were issued to Indian River County in late 2010 for public review and appeals did not recognize the Lateral D Dike as providing any flood protection. If the revised F.I.R.M. maps were adopted as presented large areas of the S.R.I.D. watershed would have been changed to Flood Zone AE with 2 – 3 feet of water during the 100 year event.

Federal Emergency Management Agency (F.E.M.A.) issued an update in 2012 of flood hazard identification and mapping to the Flood Insurance Rate Maps (F.I.R.M.) covering the majority of Indian River County. The portion of the S.R.I.D. watershed that is in the appeal process was omitted from the update and the previous F.E.M.A. maps issued in 1989 continues to apply.

ANNUAL PERMITTING AND ENGINEERING ACTIVITIES

As a reflection of the status of the national and local economy, during the past few years the submittals of new permit applications for projects within the district have remained relatively low.

A significant number of projects previously permitted, or project permit applications pending, over the past several years, have been abandoned or placed on hold. Requests for extension of permit expiration dates for a few of the previously approved projects continue to be submitted to the district.

Concurrency issues, including roadway and utility improvement projects are being delayed with the on-hold status, or failure of many of these projects, and the related developer's agreements with the County that provided funding of these projects.

During the past year, we have provided technical review and assistance, and permit compliance inspections, on behalf of S.R.I.D., for the following on-going projects:

- (1) The S.R.I.D.'s Lateral D Watershed: The design build team of Community Asphalt / BCC Engineers with Carter Associates, Inc. as a sub-consultant won the contract for the F.D.O.T. widening project. Carter Associates, Inc.'s scope of work was limited to the development of a regional watershed analysis for the land east and west of the I-95 corridor. This area (approximately 20,000 acres) lies outside of the S.R.I.D. boundaries, however it drains into the S.R.I.D. Lateral D. The drainage capacity of Lateral D is limited and never was intended to be a major outfall conveyance, therefore the build out of the watershed must be done with eye towards this limitation, otherwise negative impacts to the S.R.I.D. landowners may result. Carter Associates, Inc. has performed additional analysis on this watershed to establish discharge limitations to be adopted by the S.R.I.D. Board. The S.R.I.D. held a workshop to discuss the implementation of the Lateral D watershed volume discharge limitation resolution. The workshop was attended by representatives of the S.J.R.W.M.D., City of Fellsmere, the Corrigan's and the Ansin's. The Corrigan's and Ansin's are long term land owners of large tracts of land that drain into Lateral D. The proposed discharge limitations and the drainage models used to develop the discharge limitations are currently under review by the Corrigan's engineering and legal consultants. S.R.I.D. anticipates some questions and comments following the review of the documents. These comments will be considered

before any resolution is adopted. Following the adoption of the resolution, future development within the Lateral D watershed will be reviewed for compliance based on the adopted discharge limitations.

- (2) 82nd Avenue (County Road 609): The project planning and review of 82nd Avenue has been underway since early 2007. This is a Florida Department of Transportation (F.D.O.T.) project with engineering design by their consulting engineering firm (HDR Engineering, Inc.). Project plans call for the construction and paving of a two-lane road from the south boundary of S.R.I.D. to County Road 510 (West Wabasso Road). This project to be located partially on and along the east right-of-way of S.R.I.D.'s Lateral "C" Canal. Many meetings, both in office and on-site, have been held with F.D.O.T. officials and their consultants over the past eight (8) years during the design phase of this project.

The F.D.O.T. requested a S.R.I.D. Board approval to move forward with the sale of S.R.I.D. R-O-W based on the roadway design from the 82nd Avenue "Biddability Submittal" dated April 1, 2011. The F.D.O.T. produced a plan set with an aerial image background to facilitate the review of potential conflicts with the operation and maintenance of the S.R.I.D. drainage system following the road construction. Carter Associates completed a technical review of the F.D.O.T. Roadway Plans and prepared a memo dated February 5, 2015 which outlined modifications to the footprint of the requested S.R.I.D. R-O-W and the loss of lease income which must be addressed prior to the conveyance of the land. Also, the memo included comments to be addressed prior to the issuance of a construction permit. During the regular Board meeting on March 4, 2015 the S.R.I.D. Board passed a motion to sell the R-O-W to allow the construction of the road subject to conditions raised by the District Engineer.

For the past few months no further response to these issues has occurred. Although this project is not yet listed in the 5-year road construction planning/schedule, recent communication with the F.D.O.T. and Indian River County indicate that the road right-of-way acquisition is underway for this project with possible commencement of construction in five to ten years.

- (3) Re-permitting of Mining Projects: During this past year, Carter Associates, Inc. provided assistance to the S.R.I.D. in reviewing the permit renewals for the four (4) existing mines that are currently being operated in the District. The sand mines include the Wild Turkey Mine, the Brian Davis Mine, Range Road Mine (aka Hammond Mine), and the Ranch Road Mine (aka Steve Smith).
- (4) S.R.I.D. Permit Application Manual: Carter Associates, Inc. has prepared a permit manual outlining the District policies. Following Board adoption of the permit manual it will be posted on the District website.

- (5) County Alternative Water Supply Study: The County Board of County Commissioners retained CDM Smith, Inc. to study alternatives for public water supply to satisfy future needs. The construction of an above ground reservoir(s) to hold surface water runoff is an option that is being considered. The Alternative Water Supply Evaluation, Surface Water Reservoir Feasibility Analysis (Phase 1) dated December 2014, includes potential reservoir sites in the S.R.I.D. Carter Associates, Inc. reviewed the preliminary study and provided comments to be addressed in future phases of the project.


In addition to those activities outlined in this report above, we remain involved in the regular functions of the district as follows:

- 1) Attend all regularly scheduled meetings of the board of supervisors and maintain a district engineering file.
- 2) Remain on daily call to provide authorized 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) Monitor and review the actions and activities of other jurisdictional agencies and related organizations that may affect the operations and functions of the District.
- 4) Review District records and files in preparation of the Annual Engineer's Report as required under Florida Statutes.

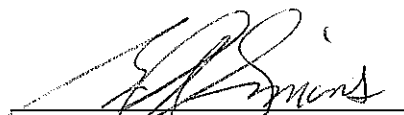
In conclusion, we are pleased to report that through the efforts of District Administrator, Todd Wodraska, with the direction and support of your board of supervisors, the S.R.I.D. continues to monitor the permitted activities and related compliance issues, maintain and protect the facilities and functions of the district, and to provide the landowners a reliable and cost-effective system of drainage and flood control.

Respectfully submitted,

CARTER ASSOCIATES, INC.



Marvin E. Carter, P.S.M. (Ret.)



George A. Simons, P.E.