

MINUTES OF A WORKSHOP MEETING OF THE SOUTH INDIAN RIVER WATER CONTROL DISTRICT HELD ON APRIL 1, 2021

A workshop meeting of the South Indian River Water Control District was held on April 1, 2021, at 6:00 p.m. at the District Work Center, 15600 Jupiter Farms Road, Jupiter, Florida, and via Zoom video conferencing. Present in person were Supervisors Tom Powell, John Meyer, Michael Howard and Susan Kennedy. Also present in person were Amy Eason, engineer; Mike Dillon, manager of operations; Holly Rigsby, office administrator; and Jane Woodard, secretary. John Jones, supervisor; Charles Haas, treasurer; William Capko, attorney; Terry Lewis, attorney; and Donna DeNinno, public information, were present via Zoom. One landowner was present via Zoom.

Mr. Powell called the meeting to order. The purpose for the workshop is to discuss the Jupiter Farms Re-Engineering study with the engineer.

Ms. Eason stated her presentation would pick up from the October 2020 workshop. She again discussed the model history which was completed in 2002 as part of the design of the water control structures. The model was based on basin flows into the canal. The control structures were designed to help bring ground water elevations up, supplement ground water flow and help maintain drainage without impacting existing conditions. Improvements to the model since 2002 include culverts under Jupiter Farms Road, and culverts along Canal 18. The outfall culverts were verified to modify the model to show discharge from the culverts and to better judge what the elevations into the basin were. The model does not include interconnected weirs.

Mr. Meyer asked if the rainfall data has been looked at in terms of climate change. Ms. Eason noted that the rainfall data actually shows the rainfall to be less overall than what it has been in the past. There has only been one 10-year storm since 1988, and rainfall was 6.7"/24 hours. She also noted that two years ago there was 6" of rainfall in two hours which is a 100-year type of intensity, but not equivalent to a 100-year three-day storm.

The model was calibrated taking the May 2020 rainfall and looking at the gauge at Lainhart and G92. Actual elevations for the 10-year 24-hour storm were added. No major increases or differences were found between the models. As has been illustrated at the annual meetings, rainfall first goes into the swale storage, then onto the roadway, and then the house pads.

Based on conclusions from October 2020, Ms. Eason looked at the tailwater impacts on the G92 and water control structure operation. Extra storage was added to the swales along a stretch of the canal. She concluded that this would further improve the system as a whole. She examined the outfall pipes, and this also showed improvement. She reviewed the canal top of bank elevations and roadway elevations. Tonight, she will show some of the results and make recommendations.

Ms. Eason showed the Lidar topography in Jupiter Farms. The seven main canals go from west to east. Sections 33 and 34 go under Indiantown Road to Canal 2 and out to control structures. She showed all the control structures which are set at different elevations. Sections 7 and 18 were looked at and are impacted by flow from the G92.

Ms. Eason then showed a graph of an actual 10-year one-day storm in November 1990. She noted that during that storm it was above gate elevations. How often the smaller gate is opened may impact the G92. Canals 14 and 2 were impacted somewhat from tailwater. In the wet season, 72% of the time water is flowing over that weir. Gate 3 showed 30% of the time water is over the weir. Gate 4 showed the same amount. Gate 5 showed more impact from tailwater. Canal 14 showed much more because that is where G92 is located. About 4' of storage is above the gate. She noted that canals do a lot for storage.

Ms. Eason displayed a graph of a typical swale storage cross section, existing vs. proposed. She modeled it and it is getting about a maximum of .22. She noted there are no interconnective weirs. There is a difference, more so in the 25-year storm than the 10-year. Ms. Eason then increased all the pipe sizes and there was a significant difference. The average went up showing an impact to more basins.

Ms. Eason then discussed the roadway level of service during a 10-year one-day event. Some roadways are not meeting the minimum elevation. Ms. Kennedy asked what is considered a flooding event, noting roadways have flooded when there was not a 10-year storm event. Ms. Eason stated this data is for the overall view and those roadway floodings are more often what happens in localized situations. Ms. Kennedy stated Sandy Run has been under water more than once. She was concerned that these roadways are not designed for a 10-year storm.

Ms. Eason presented a graph of a 25-year 3-day event, showing the canal top of bank elevations. Canal 1 cross sections showed the water recedes in some areas. In Canal 2, there is an area around the middle of the District that is a foot above. Canal 3 looked good. Canal 4 has some areas. Canal 5 is good. Canal 6 also has some areas. The difference in head conditions is about 2/10.

Ms. Eason discussed water quality. She stated deeper, wider swales and control structures at outfalls provide better water quality. She suggested continuing to look at and use these swales and structures widely where they make sense. If the District can provide water quality benefits, it may be able to obtain more grants.

Ms. Eason presented her proposed plan. She recommended building extra storage in swales by making them deeper and wider. She also recommended increasing outfall pipe sizes and providing water quality treatment. Reclaiming outfalls and maximizing the storage use of the easements will increase storage. Other recommendations were to improve canal top of bank elevations where the water levels exceed the 25-year 3-day storm event, clean vegetation from the tops of canals and improve access for operation and maintenance, improve road elevations where permit elevations are not being met, increase driveway culvert sizes and set swale grades for optimized conveyance and storage, add site-specific drainage analysis to known areas where the roadway is sometimes flooded, and add site-specific analysis for the potential of acquiring lots where issues exist or drainage was directed to low lying lots when needed. Moving forward, Ms. Eason recommended obtaining prices to accomplish these items. Mr. Powell stated this was a good model and he liked the engineer's considerations. He suggested developing this into an engineering plan and ultimately a construction plan. He was in favor of starting to develop a plan, quantifying the benefits of each option, and quantifying the cost. Mr. Powell also stated the Board needs to be able to discuss the benefits of each item as this is the groundwork for preparing a plan, if that is what the Board decides to do. Ms. Eason stated these items can be put into a plan without more detailed engineering; the elements are there. Swales are a benefit as well as increased pipe sizes. Ms. Kennedy

asked what this will do for the landowners. Mr. Meyer stated if all these improvements are made, the roadways will go underwater less often. This is something the landowners can see. Ms. Kennedy stated these items need to be prioritized to see what can be worked into routine maintenance. Mr. Meyer noted that time is also a variable. Ms. Eason noted that the study has been based on real storage for developed lots. Ms. Kennedy was concerned about lots being purchased which are level up to the house pad. Ms. Eason noted that if no water is being stored on the lots, that does not impact the roads. She wanted to do a regulation review and a special flood mitigation plan, adding fill only to within 10' of house. She suggested that only homes with that much fill would be permitted. She discussed what the District can do in our easements and special areas where there are issues, which would help on a local level. Mr. Meyer noted problem areas to be addressed and asked if the plan includes the same level of survey in Jupiter Farms as in Sections 7 and 18. Ms. Eason stated she had to make certain assumptions without the outfall surveys and cross sections. A discussion of the plan followed. Mr. Howard discussed the actual elevations of the outfall pipes and making everything relative to that, although right now we do not know where that is. Looking at different pieces of the plan, some things could be worked into the day-to-day maintenance. Then it comes down to time and cost. All things are important and will provide benefits. It was Ms. Kennedy's opinion that the outfall surveys, cross sections, and surveys of canal tops need to be done first in order to start the process. Ms. Eason noted there is enough information now to determine the cost. Mr. Powell stated the Board needs to know the benefits provided by the plan. Ms. Eason stated the primary benefit is flood protection and reduction of inundation districtwide. She noted when she did the analysis for Section 13 and then added Sections 14 and 15, it showed even better reduction in inundation. Mr. Powell noted that maybe a major plan is not needed at this time, only survey work. Ms. Eason stated this plan is improving the system that exists. Improvements can be done faster with a plan, or maintenance can be increased where needed. Mr. Meyer inquired if the Board's plan is for less standing water or is it a plan for increased storage. He questioned what the level of service would be and if the issue is just keeping lower lots from going underwater. He noted that if improvements are done piecemeal, a new Board could change those decisions. Mr. Meyer was in favor of looking at the time frame and cost of a plan for the entire Jupiter Farms area. Then the Board can decide whether or not it needs to back off on certain items. Mr. Howard noted that most of the flooding occurs because there is not enough room for the water to leave because the river is high. It does no good to get the water out faster if there is no place for it to go. It needs to be spread out. Ms. Kennedy questioned if there is a benefit to putting different weirs in, and Ms. Eason stated there is not enough differential to do that. Further discussion followed and Ms. Eason was asked to obtain costs for surveying the outfalls and data to help with canal banks, prior to the next meeting. The Board agreed it cannot decide on the next course of action until there is a better idea of the direction it is headed. Mr. Powell thanked Ms. Eason for a great engineering report. Ms. Kennedy requested a copy of this report and the one from October.

At this time, the workshop meeting was adjourned.

ADJOURNED.