

MINUTES
May 12, 2015
SPECIAL COUNCIL MEETING
11:00 A.M.

Town of Edisto Beach
Town Hall
2414 Murray Street
Edisto Beach, SC 29438

Present: Jane S. Darby, Mayor Pro Tempore, Pete Anderson, Susan Hornsby and Patti Smyer, Council Members; Quorum of Council Present. Members of the Water System Improvement Project Progressive Design-Build Services team present were: Clyde Burgess from Wharton-Smith, Lindy Cummins from Thomas and Hutton, Mark Yodis, Wharton-Smith, Julie Nemeth-Harn, Harn R/O Systems and Tim Smith from Wharton Smith. Also in attendance were Town Administrator Iris Hill, Utilities Director Bob Doub and Arnold Ellison from Ellison Consulting.

Mayor Pro Tem Darby called the meeting to order and Mr. Burgess stated the purpose of the meeting: to make sure the Town's needs are being met prior to Phase I of the project. If there are options that can be taken off the table, that can be accomplished during this meeting as well. Mr. Burgess then turned the meeting over to Mr. Cummins. Mr. Cummins gave an overview of Hydrology, which is attached to these minutes. Mr. Cummins stated that the Middendorf aquifer is "iffy" and the gallons per minute rate is usually somewhere between 1500 and 1700. There is not a guarantee of quantity or quality of water with the Middendorf. Page six of the handout shows the pros and cons of the Santee, which is part of the Floridian aquifer. Page seven shows a review of the existing facilities of the wells used by the Town of Edisto Beach. The Middendorf produces water at a higher temperature, which is not ideal for reverse osmosis since it would have to be cooled prior to the R/O process. The Middendorf also results in a higher production cost to the Town than the Santee. An advantage of the Middendorf would be fewer wells, because each well would have a higher production than a well in the Santee aquifer. The Middendorf has an average of 1,500 – 1,700 gallons per minute output. A chart of the existing wells is shown on page seven of the handout, with the average yield of each well shown in the far right hand column. The well at McConkey Square is the strongest, with a yield of 495 gallons per minute. Ms. Nemeth-Harn asked Utilities Director Doub if he had any corrections to the information on the Town's wells, and he did not. A review of existing storage facilities and recommendations for future storage was discussed next (page 8 of the handout). Mr. Cummins stated that the existing facilities should last approximately 50 years with proper maintenance. Administrator Hill asked if the suggested 400,000 gallon storage tank was in addition to the 300,000 the Town already has. Mr. Cummins confirmed that it was. Mr. Ellison asked Mr. Cummins what the basis for determining the required storage was. Mr. Cummins stated they used the storage that is available and what the proposed treatment unit will produce in a 16-hour day (as required by DHEC). Mr. Ellison asked what factors Mr. Cummins used to determine the

required volume of the storage. Mr. Cummins stated that he used the peak demand figure and assumed there was a 1,500 gpm well supply, 75% recovery and a 10% blend. That is how the capacity of the R/O plant was figured. The capacity of the plant was subtracted from the peak demand and then 100,000 was subtracted from that figure. Mr. Ellison asked if that included the fire flow requirement. Mr. Cummins said it did not. Mr. Cummins said that since the R/O plant had to be elevated above the 100-year flood stage, they were considering putting a 200,000 – 400,000 gallon storage tank under the R/O plant. If the entire footprint at McConkey Square was used (30 feet x 150 feet) with a water depth of ten feet, 360,000 gallons could be stored. This would not be an inexpensive venture, however. Councilwoman Smyer asked if anyone had considered that the Town Hall site was next to the sewer system, and if that would be a problem. Mr. Cummins said that the well would have to be located a certain distance away. Mr. Cummins said that his team was advised that the Town would like to complete as much of its CIP on the distribution system as possible. The existing hydraulic model that has already been done for the distribution system will need to be updated incorporating the latest improvements. Mr. Cummins reviewed the water quality table on page ten. The standards are advisable, not enforceable, according to Mr. Cummins. Mr. Cummins pointed out that the secondary drinking water standard for Fluoride is 2.0 mg/l and the primary drinking water standard was 4.0 mg/l. The Town's current level is averaging 3.2 mg/l. Mr. Ellison said that the EPA is bringing the Fluoride level down to 0.7 mg/l, which was announced last week. Councilwoman Hornsby asked the team if they would recommend 10% blending to bring the Town's water up to the secondary standard. Mr. Yodis suggested blending "some amount" but a reasonable target would be more than 10%. Mr. Cummins reminded everyone that the Town was not mandated to have 0.7 mg/l of Fluoride, but had to be below 4.0. Mr. Cummins said that based on the number of water connections (+/- 2359) and assuming an average use of 250 gallons per day, plus a 20% safety factor, the team had come up with an average daily demand of 0.7 million gallons. The peaking factor the team used was 2.3 and came up with a peak daily demand of 1.62 mgd. Mr. Ellison asked Mr. Doub if he kept daily pumping records. Mr. Doub said that he did. Mr. Yodis said that if you looked at all the barrier islands in SC, they are either 2.2 or 2.3 on average. Mr. Doub said that 1.4 million gallons was probably the highest in the last 13 years. The month of July 2013 the Town averaged 1.1 million gallons per day for 3 straight days. Mr. Ellison asked how DHEC went about notifying municipalities that they were at/near capacity and needed to expand. Mr. Cummins said that was speculative on a water system. Mr. Cummins asked if the direction was still NOT to plan for build-out. Councilwoman Smyer agreed that was correct. Mr. Ellison asked if there was a reason for that. Councilwoman Smyer said that cost was one reason, and since the Town is already at 86% build-out, and growth has been slowing in the past ten years, it didn't make sense to pay for a build-out. Mr. Ellison said that it might be worth finding out the cost for the build out. Mr. Ellison said that he envisioned having two units built and have capacity for a third if necessary. Mr. Cummins stated that the treatment capacity would be based on a 16 hour per day operation with a 75% recovery and 10% blend would supply 1.12 mgd plant. For that projected demand, 400,000 gallon storage would be necessary. Mr. Burgess reviewed a list of options, which is found on page 12 of the handout. He said that since the well at McConkey square is the best producer, it would make sense to keep that well and have it feed into a treatment plant close by. The existing well, however, is in the Santee aquifer, which does

not produce as much as the Middendorf aquifer. There is a risk associated with the quantity and quality of the water from either well. The team looked at the Lions Club well, since it is an existing site owned by the Town, even though it is a low producer. On the Middendorf, there is a higher capacity, and it could be done at an existing site, but there is substantially more cost. There is a bigger risk of a quality/quantity problem with the Middendorf. There is also a bigger time factor with the Middendorf. The Town already has the Santee water quality immediately available. A test well would have to be drilled for the Middendorf to determine water quality before a plan is made on size of equipment, etc. Another expense with the Middendorf would be the design and implementation of some sort of cooling system. Mayor Pro Tem Darby asked if a smaller well was not as productive as necessary, is it possible to drill in the same place as the existing well down to the Middendorf? Mr. Ellison said that if you planned for it ahead of time, and make the initial well larger than it needed to be, then it would be possible. Mr. Ellison said that might be worth consideration. Mr. Burgess stated, "In terms of the options, we'll do an option to drill a Santee for a future Middendorf but we take the Middendorf option off the table." Mayor Pro Tem Darby said that would be a viable option. Mr. Cummins said that a test well for the Middendorf would be strongly encouraged, if not required. Mayor Pro Tem Darby said that if we could operate within the Santee aquifer at a lesser cost that would be preferable, but we need to leave a "fire escape" just in case. Administrator Hill asked that if we use the Santee aquifer, would we need three new wells, or could we use our existing wells? Mr. Cummins said the Town would need a total of three production wells. Ms. Hill asked if there were plans to use any of the existing wells. Mr. Burgess said that in one option, the McConkey site well would be used, and two others would be needed. The Lions Club well, since it is close to the proposed R/O site, could be used after modification. DHEC's sixteen-hour operation rule is the main reason three wells are necessary. Two wells will provide the water, with the third well to supply redundancy. Ms. Hill asked if the cost of the transmission line from a well further away than the Lions Club well would outweigh the cost of the re-drilling of the Lions Club well. Mr. Burgess said the pipe would be "north of \$100,000" and the cost of the well would be about \$200,000. Mr. Cummins said the Bay Point well is out of the cone of influence, so it is a possibility, but the Docksite well would not be. That has yet to be determined, however. Mr. Cummins said it would be ideal to use the Docksite and Bay Point sites and drill new Santee wells there. There would be less piping needed if that were to happen. The team is afraid that #6 is too close to Docksite for this to occur. The discussion then turned to storage options. The ASR well has the most flexibility for storage. With an ASR well there is a cost to re-pump and a need to re-chlorinate. Three years ago, the cost for an ASR well was \$750,000. An advantage to the ASR well would be that it can be run 24 hours/day. This would in turn produce a higher operation and maintenance cost to the Town. Ground storage tanks have to be built above storm surge level, so the level of the ground storage tank if built on the McConkey site would have to be about nine feet. If the ground storage tank has a capacity of 400,000 gallons, it will not fit on the McConkey site. Mr. Burgess said, "The Clearwell produces an incremental difference when talking about elevating the facility, so utilizing that space to store water would be a good thing." It produces adjustable water levels and higher pumping rate and a lower O & M cost. The Clearwell is more expensive than the ground storage tank or an elevated storage tank. The ground storage tank is less costly, takes less time to build and can be built simultaneously with

the R/O facility on the same site. The elevated tank option costs somewhere in between the Clearwell and ground storage tank. It makes for better delivery, but the Team understands the Town's aesthetical preference to not have another elevated tank. Elevated tanks take "a good two years" to build, according to Mr. Cummins. Mayor Pro Tem Darby suggested the team break for lunch.

After lunch, the discussion, the team decided that as far as storage was concerned, nothing was off the table. Mr. Cummins said that his team would "run the numbers and put them in the matrix" to see if an ASR and a Santee well were viable options. Administrator Hill asked if a Clearwell was completely constructed on site. Mr. Cummins said that it was. Administrator Hill mentioned the Town owns two lots on the north side of the beach on the marsh side of Jungle Road next to Jungle Road Park. Mr. Cummins asked if there were any lots closer to McConkey square that were owned by the Town, and Administrator Hill said there were not. Mr. Burgess asked if there were any conservation easements on the Jungle Road lots and Administrator Hill said there was not. The conversation then turned to the possible sites for the project. The McConkey site has Well #6 adjacent and is close to a discharge location (the South Edisto River). The Town Hall site is a larger site, with more working room, and would be better for distribution. The team toyed with the idea of concentrate disposal at the Wastewater Treatment Plant, but were unsure of the probability of this working. Administrator Hill told the team that the Town irrigates the golf course with water from the Wastewater Treatment Plant, so that would not be an option. Mr. Burgess said that if the Town Hall site was used, the plant can be built with an underground storage tank and the footprint would be big enough. Mayor Pro Tem Darby said it would come down to what is going to do the most good for the Town as to which location to use. Mr. Burgess said, "When we start talking about the restriction on the ASR withdrawals, and we develop this 400,000 gallon storage requirement, we need to look hard at the (state) Park site and see about using it. We can put the two wells there, it's got 200,000 gallons of storage, it would help distribution. What I'm talking about there is using it along with something at McConkey." Concentrate disposal is an issue at the state park site. There would have to be two R/O systems and that would drive up the costs. When the team started looking at just McConkey versus McConkey and the state park site, the two sites were more expensive. Administrator Hill said all storage would be above ground except for ASR, so any place an above ground tank would be, there will be concern from the community. Administrator Hill asked how the water quality would be determined from an ASR well. Mr. Yodis said that there would be a monitoring well further out so you can see the movement of the water as you're putting it in the ground. The water is then monitored frequently as it comes out, and if the total dissolved solids or chloride starts to increase, that is an indicator that the maximum has been withdrawn. Administrator Hill asked how this was tested. The water samples can be sent to an off-site lab or an on-site test can be done.

Mr. Burgess stated that with the general numbers the team has been considering, a ground storage tank built above storm surge level is the least costly method of storage. The next most affordable option is an elevated tank, and the next most expensive would be the ASR well. The Clearwell would be the most expensive storage option. Mr. Burgess said the ASR numbers were just in

terms of construction costs, not taking into account the retreating of pumping in/pumping out. Mr. Ellison pointed out that the retreating would be simply to re-disinfect. The discussion then turned to the treatment options. The team has considered pros of the Santee having more redundancy with more wells, the lower O & M costs and the capability for more blending. With the Santee, there would be more wells, and possibly more than one R/O plant which would increase overall cost. Mr. Burgess asked how much land the Town owned at the state park site, in case more than one R/O plant was necessary. Mr. Doub told the team that the Town owns what is enclosed by the fence and the access road (less than 2 acres). Mr. Yodis suggested a "modular" type R/O plant at the state park site to be at the low end, which could be run in the summer for a few hours a day and then shut down partially or totally during the winter months. Administrator Hill asked where the concentrate would be discharged from the state park site. Mr. Yodis said that would probably include laying pipe to handle the discharge. Administrator Hill said she was unsure the State Park would give the Town permission to discharge the concentrate. Mr. Cummins said the team had run the numbers and when they had tried to split things up at the state park site and do something with the existing infrastructure, it is just not cost effective. The Middendorf wells give more supply with less piping, but cost more and has full redundancy and higher operational and maintenance costs. Mrs. Nemeth-Harn added the Middendorf added "more risk in general." The team really wanted to use the state park site wells to improve distribution if treatment could be done at that site, and reduces some of the need for storage. However, there are concentrate disposal issues and the redundancy produces higher O & M costs across the board.

Mayor Pro Tem Darby gave the team a list of things that Council is interested in, which is attached to these minutes. Mayor Pro Tem Darby said that no options were off the table at this point, but any plan is dictated by the amount of money required and the Town's ability to pay. Mr. Cummins said that the team would need as much information as possible from the Town, including the hydraulic model on a cd, so they can run the distribution model. Mayor Pro Tem Darby said the Town would be glad to furnish any information the team needs. Mr. Burgess asked if the Town would be pursuing private funding. Administrator Hill said that the Town had spoken to some financial advisors and would be getting information from them.

Mr. Burgess addressed the slide on page 13 titled "Confirm Budget and Schedule". The Phase 1 Budget is \$90,000 and the team is to come back with options and suggestions of what is the best plan, and the cost. Mr. Burgess said, "At that point in time, and we've talked about this, what can we do for \$90,000, and Lindy (Cummins) talks about trying to do this modeling, trying to do a preliminary engineering report. I don't think, with all the things we have to consider, we have to get past this phase and make a decision and then start the design work." Mr. Cummins said the only "twist" is the \$90,000 cap. Mr. Cummins indicated that would restrict the amount of work that could be done. Mr. Burgess said that the team needed to come back with budgetary numbers on several different options and then present permitting and final scope costs. Administrator Hill reminded the team that when they gave their presentation to the Water and Sewer Committee, they were asked if they could do what the Committee asked within the \$90,000 budget and all teams said they could. Mr. Cummins said that the team can give the

Town a number, but the number may not be as solid as it could be. Administrator Hill said that it needed to be a solid number. Ms. Nemeth-Harn indicated that more typically the first phase of a progressive design/build is approximately ten percent of the total construction cost, so even if this is a four million dollar project, the first phase cost would typically be \$400,000. In order to get to a 30% for a well-pinned down GMP it would be more in that range. The less far along the design, the greater the contingency will be. Arnold Ellison asked the team if they had formulated a scenario that would be best for the Town of Edisto Beach. Mr. Cummins said that he thought he had until the discussion with all involved parties. He did say that the numbers the team had come up with indicated the McConkey site was the better, cheaper option and was less than \$8.4 million. However, the team did not have enough information to present that as a viable option at this point. Mr. Cummins stated it would not take the team long to put together a recommended scenario.

The meeting was adjourned by common consent.

The media/public was duly notified of the date, time and place of the Council Meeting on Friday, May 8, 2015

APPROVED BY TOWN COUNCIL



Deborah Hargis
Municipal Clerk
June 11, 2015