TOWN OF KILL DEVIL HILLS

Land Where Flight Began

MEMORANDUM April 11, 2022

TO: Mayor and Board of Commissioners

FROM: Debora P. Diáz, Town Manager

REF: New Business

1. Recommendation to amend Ocean Acres wastewater flow allocation (Attached NB-1)

Since the Town updated its residential wastewater flow allocation in 2008, development in the Ocean Acres neighborhood has greatly increased: from 68 undeveloped lots to now 20 remaining. Public Services Director Steve Albright's attached memorandum highlights the growth and capacity levels, with no growth in commercial allocations and reduction in residential allocations to 880 gallons.

The Ocean Acres average daily flows graph in Mr. Albright's memorandum demonstrates that rates remain well below the 70,000 gallons per day of purchased capacity monthly maximum. In calculating the capacity to address the potential of homes in the remaining lots, an additional 8,720 gallons per day is required. Staff recommends the following:

- Combine the remaining residential and commercial flow into a single account with a remaining capacity of 13,450 gallons.
- Authorize the capacity sale to both commercial accounts (if any need arises) and residential accounts from the remaining combined allocation.
- Maintain all other policies for the sale of capacity related to commercial and residential customers.

A motion would be in order.

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April 11, 2022

Memorandum

To: Debora P. Diaz, Town Manager

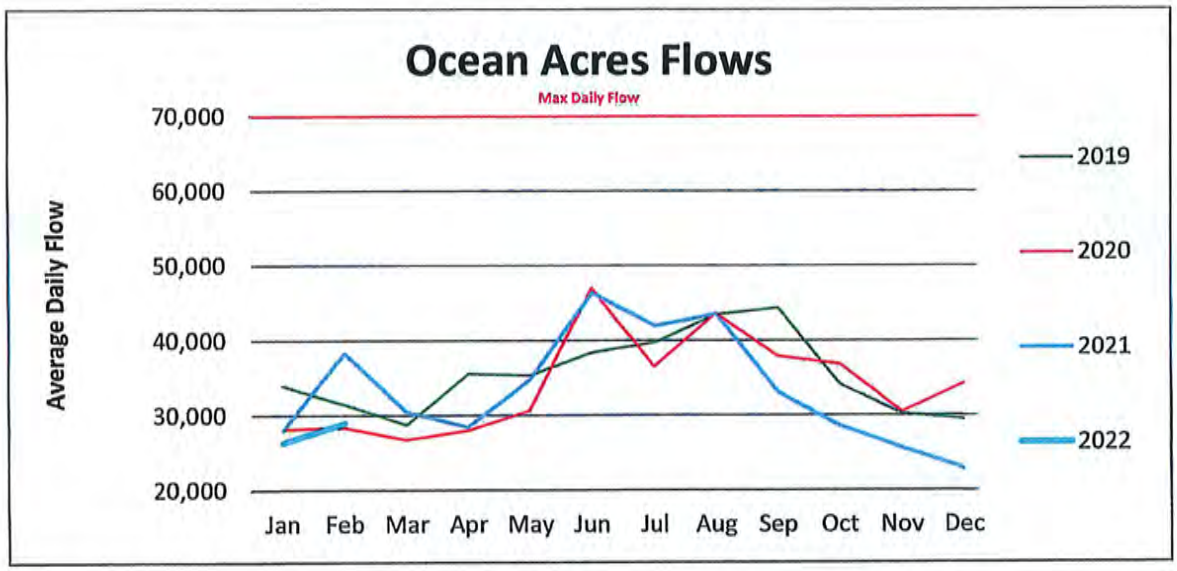
From: Stephen F. Albright, Public Services Director SFA

Subject: **Recommendation to Amend Ocean Acres Wastewater Flow Allocation**

The current residential wastewater flow allocation remaining is 880 gallons for Ocean Acres properties within the 1,200' AEC. Development has been steady during the last decade with only approximately 20 remaining undeveloped lots. This number is down from 68 undeveloped lots when this policy was last amended on November 19, 2008 (minutes attached). During the 2008 meeting, 19,000 gallons were allocated for residential buildout while 12,570 gallons were reserved for commercial development.

The development of the 48 lots since 2008, with many being larger than the projected 3-bedroom design flow, has reduced the remaining residential allocation to the above referenced 880 gallons (see attached map). Conversely, no commercial allocation has been sold since the 2008 allocation and the commercial balance remains at 12,570 gallons.

Staff has continued to track monthly wastewater flows and they remain well below the maximum monthly average of 70,000 gallons per day of purchased capacity. See graph below:



Based on this flow data, sufficient capacity remains within the 70,000 gallons per day purchase capacity to allow the buildout of the remaining 20 residential lots assuming 4-bedroom homes are built (20 x 480 gallons per day = 9,600 gallons). With 880 gallons remaining in the current residential allocation (enough for about two more homes), an additional 8,720 gallons per day is needed to allow the remaining residential development.

To accomplish this, staff recommends:

- Combining the remaining residential and commercial flow into a single account with a remaining capacity of 13,450 gallons
- Authorize the capacity sale to both commercial accounts (if any need arises) and residential accounts from the remaining combined allocation
- Maintain all other policies for the sale of capacity relating to commercial and residential customers

This policy modification will allow the existing remaining and unused commercial capacity to supply the needed capacity for the undeveloped residential lots. Beyond the buildout of these 20 residential properties, additional capacity remains for both commercial sales or additions to existing residential structures (adding a bedroom). This modification also simplifies the reporting going forward and saves possible consulting costs should a formal study be completed to create additional capacity towards the 70,000 gallons per day purchase capacity.

Thank you for your assistance.

8. Recommendation to amend Ocean Acres flow allocation schedule (Attached NB-8)

In 2005, the Town purchased 70,000 gallons per day (gpd) of capacity in the KDHWWTP, LLC to provide service to residential and commercial properties in the Southern Sanitary District (Ocean Acres), which is an Area of Environmental Concern (AEC). Subsequent to this purchase, Albemarle Engineering performed an allocation and rate study resulting in the Board of Commissioners' adoption of a wastewater allocation policy. The last modification to the policy was adopted by the Board on April 10, 2006 and guides the current operations. That policy divided the allocation to a 75%/25% split between residential customers and commercial use, respectively.

The current allocation is nearing consumption, which has lead to concerns regarding the future availability of capacity. To address these concerns, the Town, in May of this year, entered into an agreement with Stearns & Wheler, an environmental engineering firm that has also worked with R.W. Beck in consideration of the Town's purchase of the KDHWWTP, LLC. The results of this study are summarized in Public Services Director Randy Metzger's attached memorandum, and Staff concurs with the study's recommendation

John Eick, P.E. of Stearns & Wheler was in attendance to present the study's findings and answer any of the Board's questions. He showed a PowerPoint presentation and a copy of the slides are attached.

Mr. Eick began by covering the background of the allocation policy. Albemarle Engineering had to make many assumptions in assisting the Town with the development of the policy because at that time, there was no way to measure the wastewater that flowed from that area. Stearns & Wheler, in their study, were able to do so since there is now a meter in place. Albemarle Engineering estimated that once all of the existing facilities that had been hooked up to the system were served, there was approximately 30,000 gpd of capacity remaining to allocate. The Board of Commissioners decided to sell 60% of the 30,000 gpd (18,000 gpd), with 75% of the 18,000 gpd designated for residential use and 25% for commercial use. This policy has been in place since that time. Since 2005, the Town has approved a number of connections and concern arose that the allocation was nearing depletion. Stearns & Wheler was retained to re-evaluate the flows and to determine the available capacity.

The first step Stearns & Wheler took was to define exactly what was meant by "70,000 gpd capacity." The question was whether that flow was instantaneous or an average (weekly or monthly). If the flow were instantaneous or daily, then on any given day, if the flow exceeded 70,000 gpd, then the Town would be over its allocation. If that amount was a monthly average, on a daily basis the flow might exceed 70,000 gpd one or two days during a month, but as long as the *average* was below 70,000 gpd then the Town it within its allocation. The agreement did not make this specification, but after speaking to the Town Attorney who negotiated the agreement, Stearns & Wheler looked at the WWTP's averages, and they were able to determine the capacity was a monthly average.

Mr. Eick showed a graph displaying flows for the month of July, a peak flow time for any resort community. The average flow was approximately 38,430 gpd. There was a two-inch rainstorm at the end of the month, and the graph showed an increase in flow due to the rainstorm,

indicating that there is some infiltration in-flow in the area. That amount was not unusual or alarming. This information, used in conjunction with other data such as water use and the number of residences that were occupied during this time, showed that the Town was still well below its allotment of a monthly average of 70,000 gpd. There are 68 remaining unimproved parcels within the AEC at Ocean Acres. Assuming that all of these were developed with a 3-bedroom house, that would equate to approximately 14,000 gpd of actual flow. This amount added to the average flow would still be below 70,000 gpd (14,000 gpd + 38,430 gpd = 52,430 gpd). In summary, adequate capacity remains to serve all residential customers in Ocean Acres.

Based on these findings, Stearns & Wheler made the following recommendations:

- Reserve 14,000 gpd for remaining unimproved parcels, plus a 15% contingency (5,000 gpd) for a total of 19,000 gpd
- Allow remaining 12,570 gpd (70,000 gpd – 38,430 gpd – 19,000 gpd = 12,570 gpd) to be allocated at the Town's discretion (most likely to commercial users)
- Continue monitoring weekly average flows as new connections are made and adjust the remaining allocation accordingly
- Town staff should report allocations granted and remaining capacity to the Board of Commissioners annually based on measured flows at Pump Station #2

After discussion, the consensus of the Board was that the information provided by Stearns & Wheler was adequate and the recommendations were reasonable.

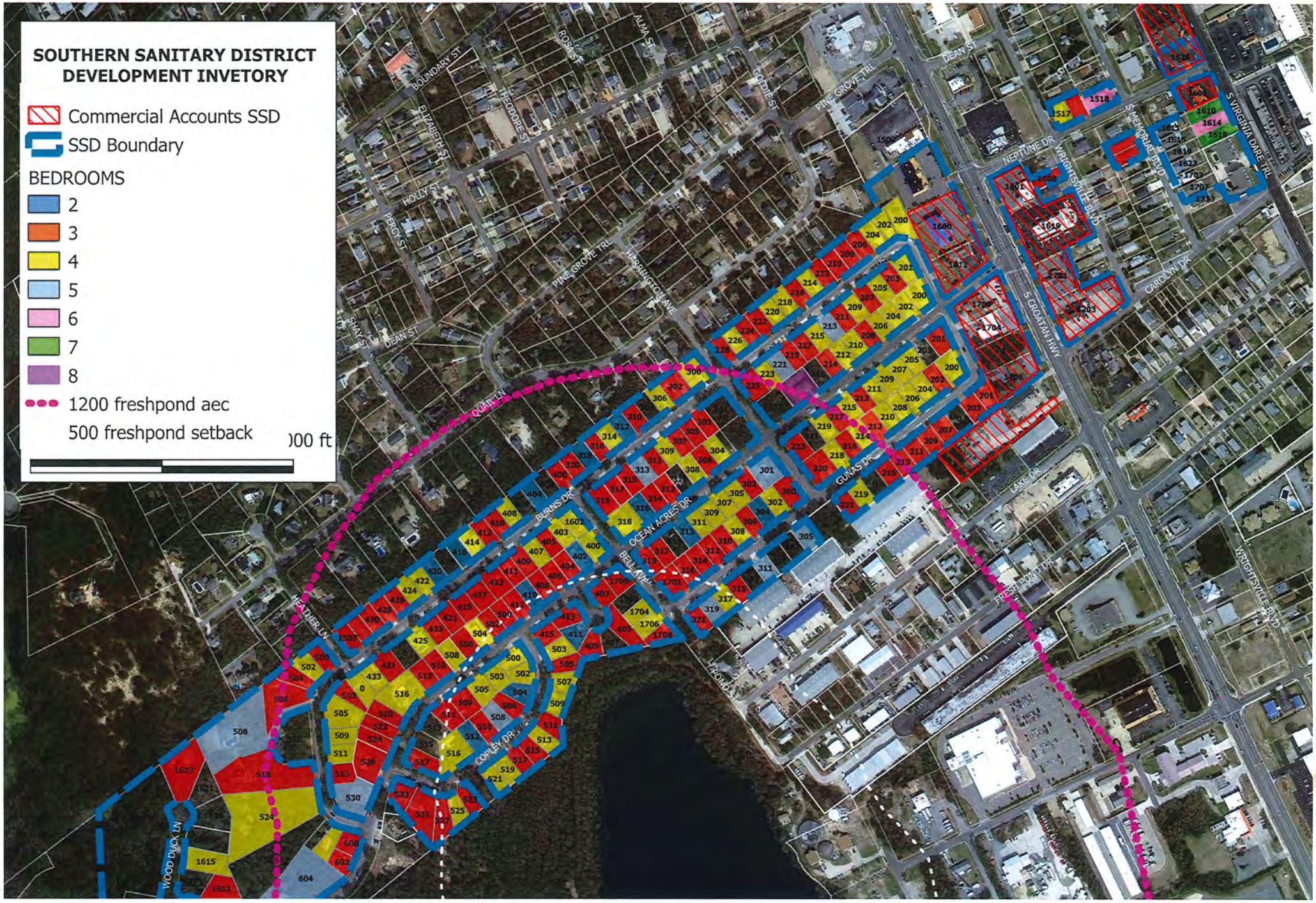
Commissioner Buske made a motion to authorize the amendment of the Ocean Acres flow allocation schedule based on the information received from Stearns & Wheler allowing for an additional allocation of 19,000 gpd for residential users and 12,570 gpd for commercial users. Commissioner Finch seconded that motion, and the vote was 5-0.

9. Recommendation for Bid Acceptance – N.C. 12 Water Main Improvements, Phase II (Attached NB-9)

Bids for Phase II of the water main improvements along N.C. 12 were received and opened on November 13, 2008. The project was approved by the Board of Commissioners on May 12, 2008, and is a continuation of the 16-inch water main completed last year. This section begins at Wright Avenue and extends north through Third Street with a connection at Second Street. The bid documents also included an alternate bid to install the water main under U.S. 158 at Hayman Boulevard for the purpose of cost savings.

The low bid for the project was submitted by Geo. Raper & Sons, Inc. in the total amount of $1,723,885.00. Funds are available within the existing budget. Pete Burkhimer, P.E. of Engineering Services of Virginia, Inc. (ESVI) reviewed all bids and has recommended awarding the project to this firm. The bids for Alternate X, the water main installation under the bypass at Hayman Boulevard, were not at a substantial discount for lumping it with the one at Second Street; therefore, Mr. Burkhimer recommended no award for this alternate. Mr. Burkhimer has also included a proposal for engineering services during the construction phase of the project.

If the Board is in agreement, a motion or motions would be in order to:


SOUTHERN SANITARY DISTRICT
DEVELOPMENT INVETORY
Commercial Accounts SSD
SSD Boundary
BEDROOMS
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3
4
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7
8
1200 freshpond aec
500 freshpond setback
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BOUNDARY ST
ROSIE ST
ALMA ST
THEODORE ST
GOLDIE ST
PINE GROVE TRL
DEAN ST
ELIZABETH ST
HOLLY ST
PERCY ST
SHAY ST
HARRINGTON AVE
QUAIL LN
NEPTUNE DR
WRIGHTSVILLE BLVD
S MEMORIAL BLVD
S VIRGINIA DARE TRL
CAROLYN DR
S CROATAN HWY
GUNAS DR
LAKE DR
FRESH POND DR
BURNS DR
OCEAN ACRES DR
BELL AVE
COPLEY DR
HEATHER LN
WOOD DUCK LN