NORTH FLORIDA PROFESSIONAL SERVICES, INC.
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COLUMBIA COUNTY - NW SPARR LANE BASE FLOOD ELEVATION STUDY

ENGINEERING REPORT

COLUMBIA COUNTY, FLORIDA

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Project Description (Figure 1)

NW Sparr Lane is located just south of NW Suwannee Valley Road adjacent to US Highway 41 in Columbia County approximately 2.85 miles south of the Suwannee River across the roadway from Barbara Lake. A concern with regards to the Base Flood Elevation (BFE) in this area has arisen. The area immediately northwest of the area (approximately 900 feet) lies within a Zone AE with a 100 Year Flood Elevation of 87' NAVD (Figure 2). The Sparr Lane area is bounded on the north by NW Tad Place and NW Austin Way and on the south by NW Austin Way and NW Bonita Way. This area is completely in a Zone X and is not legally subject to the 87' NAVD BFE. The area that Sparr Lane is in is a closed basin to the elevation of approximately 93' NAVD at which point it discharges to the north over a broad area approximately 450-500 feet in length.

Modeling

To address the concern relative to the Sparr Lane area and future residential construction Columbia County authorized North Florida Professional Services, Inc. (NFPS) to gather relevant data and model the drainage basin that Sparr Lane is in. As previously mentioned this basin is closed to approximately elevation 93' NAVD. Input from the model to be used (PONDS 3.2) was developed as follows:

1. USGS Quad Maps and LiDAR (Light Detection and Ranging) Elevations were utilized to determine the outline and size of the drainage basin which is 85.36 acres in size (Figure 3).
2. Soils data, depth to groundwater, and hydraulic conductivity were determined using data gathered from the USDA Natural Resources Conservation Service Web Soil Survey website (Attachment 1).
3. Google Earth Aerials (March 6, 2018) were used to determine current land use over the 85.36 acre drainage basin (Figure 4).
4. The data gathered from Items No. 1, 2, and 3 were used to determine Runoff Curve Numbers (Attachment 2).
5. The Google Earth Aerial and the Design Spreadsheet in Attachment 2 were used to calculate a Time of Concentration.
6. Drainage Basin storage was determined using LiDAR and CADD to develop Stage-Storage (Attachment 3)
7. This data was input into the Ponds 3.2 Stormwater Model and run for the 100 Year, 24 Hour Storm Event. Input and output files can be found in Attachment 4.

Model Results and Conclusions

The modeling for the 85.36 Acre drainage basin yielded a maximum stage of 89.65' NAVD. While the Sparr Lane area is not legally within the Zone AE that has a 87' NAVD BFE, based upon the modeling a 100 Year, 24 Hour rainfall will under current conditions flood any residences with a BFE under 89.65' NAVD.

If the County were to decide to follow current Land Development Regulations within the Sparr Lane area with homes being constructed one (1) foot above the BFE, required Finished Floor Elevations should be required to be constructed at 90.65' NAVD (Figure 5). Any fill placed below the 89.65' NAVD elevation will cause flood elevations to increase.

Based on Lidar data being 1' above the road will be higher than 90.65'.