MALACH CONSULTING

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Betsy La Force
Communities & Transportation Project Manager
South Carolina Coastal Conservation League
131 Spring Street
Charleston, SC 29403
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E-mail: BetsyL@scccl.org

Dear Betsy,

I am writing to address the following question: What is the watershed boundary that was used in the report from Seamon-Whiteside dated August 11, 2020, and entitled "Drainage Report for Central Park Cluster Development?"

For context, in a previous memo addressed to Rep. Spencer Wetmore and copied to you, I showed that the watershed boundary from the USGS/SCDOT StreamStats model is very different from the watershed boundary that was used in the AECOM study dated August 7, 2020, and entitled "Technical Memorandum Subject: Evaluations and Recommendations for Central Park Project Area." These watersheds are compared in Figure 1 in which the watershed boundary from the USGS/SCDOT StreamStats model (amethyst line) is superimposed on the stormwater infrastructure improvements that were recommended by the AECOM study. The comparison shows that some of the stormwater improvements that were recommended in the AECOM study are not even in the Central Park watershed. Although the City of Charleston has said that they will compensate for inaccuracies in the AECOM stormwater model by overdesigning the stormwater infrastructure, stormwater improvements that are outside of the Central Park watershed will not improve drainage in the Central Park watershed, no matter how much they are overdesigned.

For reference, the USGS StreamStats application can be accessed through this link:

https://streamstats.usgs.gov/ss/

Information about the USGS/SCDOT StreamStats model is available at this link:

https://pubs.er.usgs.gov/publication/fs20183070

According to the Seamon-Whiteside report, "the City also required the expansion of the downstream analysis to incorporate all the contributing watershed from upstream of the site all

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the way to James Island Creek." However, there is no map in the report that actually shows the watershed boundary. The only explanation as to the extent of the watershed is the phrasing "DRAINAGE SYSTEM DESCRIPTION A. System Description 1. Watershed (shown on USGS Quad Map—Appendix A)." There is an Appendix A, but it does not include the USGS topographic map.

It would make no sense to develop the watershed boundary from the USGS topographic map. In the first place, in areas with stormwater infrastructure, watersheds do not depend on topography alone. This is especially true in urban areas with extensive culverts, in which roads can block stormwater runoff, but culverts can convey the stormwater flow under the roads. It is just as important that the contour interval for the USGS topographic map is 10 feet, so that it would be worthless for developing a watershed boundary. The USGS topographic map for the Charleston Quad is available at this link:

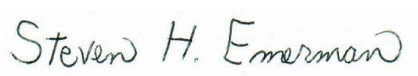
https://catalog.data.gov/dataset/usgs-us-topo-7-5-minute-map-for-charleston-sc-2017c9312

If Seamon-Whiteside wanted to develop the watershed boundary from topography alone, it would have been much more accurate to use the most recent Lidar data. Seamon-Whiteside did use Lidar data for other purposes because they write, "To properly study this drainage canal and the road crossings, cross-sectional contour and elevation data was interpolated from the most recent available LIDAR data provided by the City of Charleston via the FOIA process." However, Seamon-Whiteside did not say that they developed the watershed boundary from Lidar data nor did they mention the existence of either the AECOM study or the USGS/SCDOT StreamStats model.

In summary, Seamon-Whiteside provided no information about the watershed boundary that they used in their drainage report, although that would be the foundational element of any stormwater model.

Please let me know if I can help with anything else.

Best wishes,



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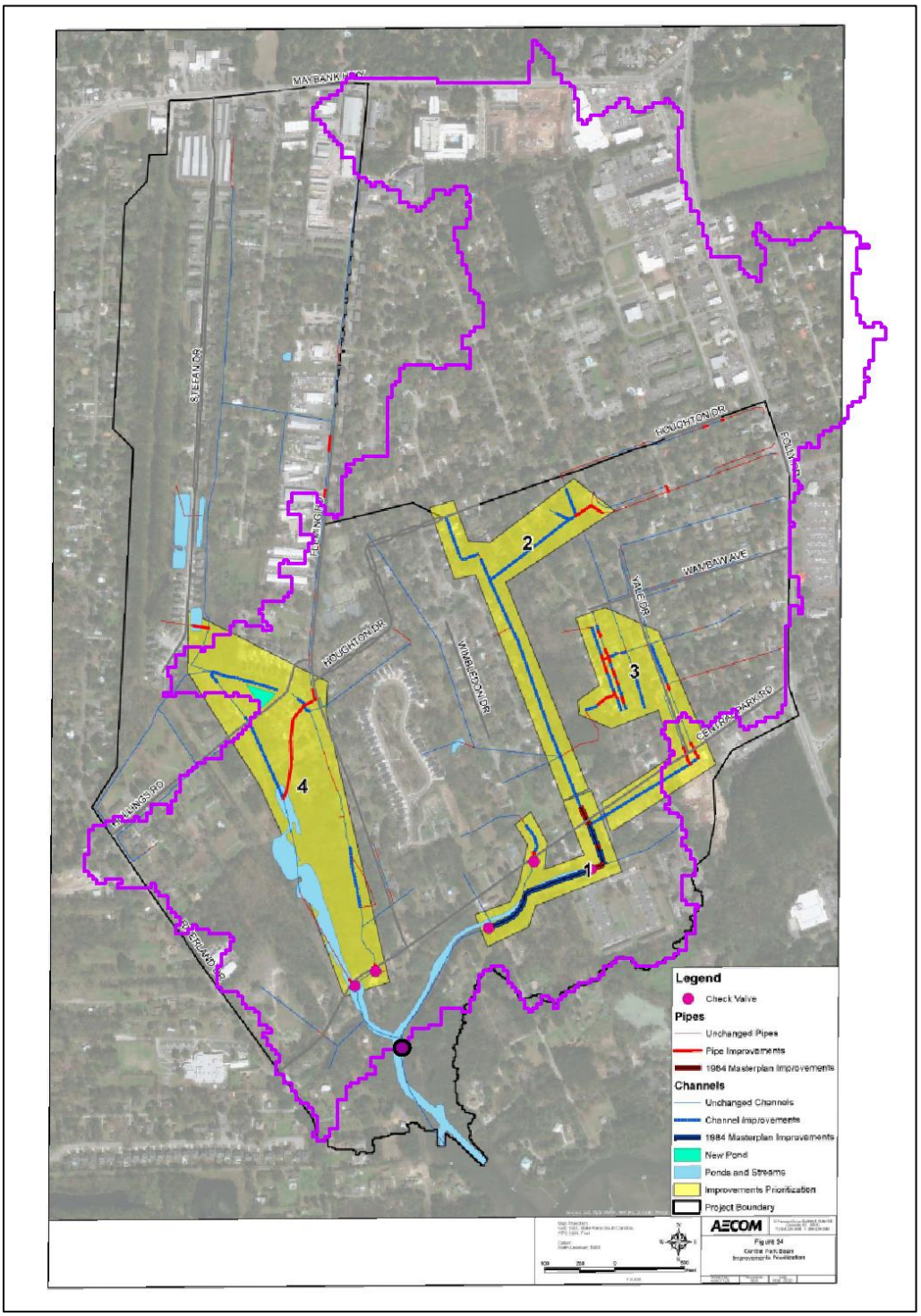

Figure 1.