



# Sungate Design Group, P. A.

CIVIL ENGINEERING - ENVIRONMENTAL

905 Jones Franklin Road – Raleigh, NC 27606 – Phone 919.859.2243 – [www.sungatedesign.com](http://www.sungatedesign.com)

August 24, 2021

Ms. Tina Moon  
Planning Administrator  
Town of Carrboro  
301 West Main Street  
Carrboro, N. C. 27510

Re: 106 Hill Street Lot

Ms. Moon:

Pee Wee Homes has submitted a rezoning request for the 106 Hill Street to R-3, conditional, for the purpose of constructing three very small single-family dwellings (Tiny Homes). At the June 22<sup>nd</sup> Town Council Meeting, Council Member Slade posed several questions regarding the lot and potential flooding issues. The parcel has an existing 48" pipe that crosses diagonally across the lot, connects to an open throat catch basin, and then flows under Broad Street through a 54" pipe. The piped drainageway is subject to Town stream buffer requirements. Pee Wee Homes has applied for and received a variance to encroach on the stream buffer for the purpose of building the homes. Following are our responses to the questions:

***Are there concerns with potential overflows from the existing pipe? What is the history of the pipe and flooding?***

There are concerns with overflows from the existing pipe. Sungate completed a hydrologic and hydraulic study in 2016 to investigate flooding issues at the Piedmont Health Center which is located on Lloyd Street upstream of the property in question. Based on the estimated discharges from this study, the 54" pipe under Broad Street would create backwater that would overtop near the intersection of Broad and Hill Streets. This coincides with statements from adjacent property owners that have previously observed overtopping during intense rainfall events on a few occasions.

While flooding is of concern, damage to the proposed homes can be minimized by elevating the finished floor elevations and mechanical equipment a minimum of 2 feet above the overtopping elevation near the intersection of Broad and Hill Streets. The foundation for the homes would need to be vented according to *NFIP Technical Bulletin 1, March 2020, Requirements for Flood Openings in Foundation Walls and Walls of Enclosures*. Grading of the lots should be minimal and not impede stormwater from overtopping Broad Street or increase the overtopping elevation.

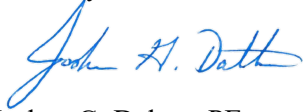
***Would there be benefit of daylighting the stream? Would that help or exacerbate the potential flooding?***

There are many benefits to daylighting and restoring streams and the associated buffers including increased habitat for wildlife, increased stormwater treatment and quality, and increased flood mitigation. However, daylighting this piped system in order to restore the stream would present significant challenges as the stream limits would encroach onto approximately five private properties. Daylighting this section of stream would provide minimal flood mitigation unless the pipe under Broad Street was replaced with a larger culvert or supplemented with an additional culvert as the ponding is controlled by backwater from the existing 54" pipe located under Broad Street.

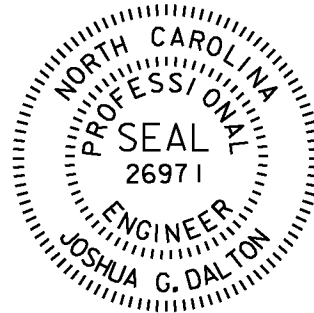
Based on the current proposed site plan, daylighting of the stream would be limited on this lot and may require piping as the buildings will likely encroach into the stream excavation limits.

If you have any questions or need additional information, please contact me at 919-710-8333.

Sincerely,



Joshua G. Dalton, PE



8-25-2021