



**B.O.A**  
C15-2019-0055  
2803 Edgewater Dr.

## Table of Contents

3	Civil Engineering Letter Concerning Drainage, Jeffrey S. Kessel, P.E.
4-9	Our Compromise in Slide Form
10-22	Photographs
10-13	Area of Character
14-17	Rimrock Critical Environmental Features
18-21	Stilt House at 1806 Ski Slope
22-29	Supporting Documents: Stilt House
22	Chris Lewis, Stilt House Variance Request (2015)
23-25	Site plans for Stilt House on this Property
26	Advantages of Stilt House Construction
	Legal Clarification
27	Vested Rights Flow Chart
28-29	Rules and Rights 1980 Lake Austin Watershed Ordinance

January 9, 2020

Mr. Earl Hunt

Subject: Mark Odum Plans for 2803 Edgewater Drive

Mr. Hunt,

The purpose of this letter is to provide my review comments on the plans prepared for the referenced project. My review was focused on drainage and related environmental concerns. You made design documents available for my review (via Dropbox). The files found are related to a Board of Adjustment (BOA) Case No. C15-2019-0055 ADV PACKET Jan 13 copy.

Mr. Odum's main argument to the BOA is the unfairness of the impervious cover requirements that apply to his steep tract of land. He believes that he can develop his site to a much higher level of impervious cover than currently allowed. However, his analysis of proposed drainage conditions does not address most of the specific site alterations, and his designs do not show how runoff will be directed while preventing scour and erosion. The limited hydrologic analysis I reviewed simply shows a comparison between pre- and post-development peak discharges at the detention basin and on the roadway. The provided design information does not show how these flows would reach the detention basin once is buildings are in place. I expect all of these details will be provided as part of the City of Austin (COA) site plan review process. Mr. Odum's plans do not convince me that the proposed increase in impervious cover can be managed without causing scour, erosion and offsite impacts.

Today's regulatory limits on impervious cover were derived based on a long history of problems caused by land alterations on steep slopes. The allowable amount of cover should be determined on a case basis. To determine an allowable amount of impervious cover, and not cause on-going maintenance problems on the subject tract or the adjacent properties, the site runoff must be carefully accounted for and properly routed down slope. A complicated drainage site such as this one is typically analyzed in more detail, showing more drainage areas that correspond to the varying site conditions (grading, structures, vegetation and soils, etc.). It's not enough to simply build a catchment basin at the bottom of the site. In general, the overall hydrologic analysis does not adequately represent the proposed grading and structural changes to this lot. Each major flow path across the site should be clearly shown and the drainage analysis must show flow rates and velocities that are used to design runoff controls to protect these areas. I believe the following questions need to be addressed in the site drainage design.

Roof Runoff:

1. Drawing notes state that the building runoff would be captured by gutters and collected. However, there are no drawings or descriptions on how these captured flows would be routed, stored or otherwise managed, once they are discharged from the gutters.
2. Is rain water capture intended to mitigate for structure runoff and, if so, how will the system be managed?

Rain Gardens:

1. How are the rain gardens intended to function? (i.e., what is their intended capture volume and how much of the upland drainage area is controlled by these facilities?)
2. Will they include under drains? And what provisions are there to control by-pass flows once the gardens are saturated and overflowing?

January 9, 2020  
Earl Hunt  
Mark Odum Plans for 2803 Edgewater  
Page 2

3. The retaining walls that form the rain gardens will tend to divert overland flows toward each side of the house. Here, the drainage will become constricted and significantly concentrated compared to the drainage ways under existing conditions. The plans show no runoff conveyances to manage these concentrated flows.

Septic Drain Fields

The drainage designs do not show how runoff will be routed over the extensive drain field areas, particularly at the edges of the retaining walls, which will function as runoff discharge controls once the ground is saturated. There should be some analysis that demonstrates the drain fields can withstand runoff impacts without compromising their function.

It is my understanding that you have observed potential rim rock features near the upper end of the subject tract. These features need to be carefully evaluated and shown on the plans if they are determined to be critical environmental features. If there are rim rock outcrops, they could be a source of emerging ground water, and their impacts on the drainage system and septic drain field function must be determined.

Managing stormwater runoff to prevent scour and erosion will be a great challenge once the ground distributing construction activities begin. To this end, the drainage system design that I reviewed is incomplete for both temporary construction phases and permanent post-construction site conditions. The available drawings only show a set of proposed rain gardens upslope of the house and a detention basin at the bottom of the lot. Except for a grated trench drain proposed to capture and divert driveway runoff to the detention basin, there are no runoff conveyances that show how stormwater would be routed from the upper end of the lot, over the extensive septic drain fields, around the house perimeter and on toward the detention basin. There are too many drainage system disconnections under the present design, and I am not convinced the requested amount of impervious cover can be justified.

Please contact me if you have questions.

Thank you.

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2803 EDGEWATER C I 5-2019-0055 INTERESTED PARTY SUGGESTIONS – JAN 13, 2020

- The Board of Adjustment has encouraged us to seek a compromise rather than simply advocating denial of this variance request. We recognize that the applicants have decreased their project's size, but its scale and appropriateness continue to concern us. Do these results conform to the area of character of the neighborhood?
- We are suggesting reasonable development to enable the owners to enjoy the property with less environmental impact.



2803 EDGEWATER C I5-2019-0055 INTERESTED PARTY SUGGESTIONS – JAN 13, 2020

We would propose an alternative development model of a “stilt house” with a pier and beam foundation, a minimal impervious footprint, and a gravity-fed septic system.

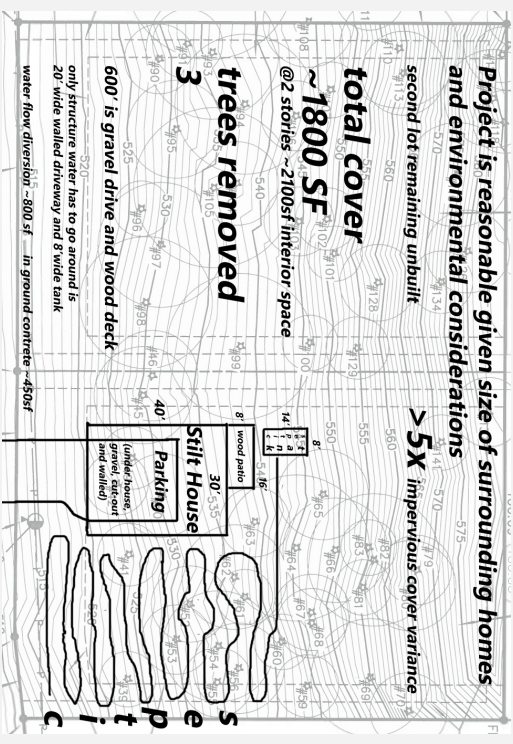
A recent example of this construction is 1806 Ski Slope Drive, situated on Lake Austin less than a mile from 2803 Edgewater.

We also suggest that the owners might utilize the adjacent lot which they also own for their septic field.



1806 Ski Slope Drive

Advantages of “stilt” construction – flexibility of placement on slopes, less need to alter and grade the land, less need to damage or remove trees, and greatly simplified drainage requirements.



Rough sketch of sample “Stilt House”

2803 EDGEWATER DRIVE C15-2019-0055 INTERESTED PARTY SUGGESTIONS – JAN 13, 2020

We'd like to see fewer retaining walls, especially in close proximity to the top of the hillside. We'd like to see a gravity-fed septic system which doesn't come so far up the hillside.

Water Resources Engineer Jeff Kessel, in his letter [attached], notes that there are "drainage system disconnections". He states that the proposed drainage conditions do not address most of the specific site alterations or show how runoff will be directed. He questions how the proposed increase in impervious cover can be managed without causing scour, erosion and offsite impacts.

