April 3, 2018

The Honorable Mayor Madolyn Agrimonti and Council Members
Sonoma City Council
No. 1 The Plaza
Sonoma, CA 95476

Re: Pad Grading Letter for the 149 4th Street Residence, Lot 227 Residence and Lot 228 Residence

Dear Mayor Agrimonti and Council Members,

Pad grading limitations was a major topic of the first appeal meeting for these three projects. I would like to provide some reasoning for our grading design around the three residences and explain why a novel application of the lot pad grading guideline, combined with a broad definition of what a "pad" is, would make it extremely difficult to safely build on these sites.

A discussion by the Council to define what is included in "Lot Pad Grading" was started during the last meeting. Certain Council members advanced a new interpretation, including walkways, pools, decks, and perhaps even driveways.

The definition in the city code 19.40.050 Hillside Development Guidelines reads "Lot pad grading should be limited to the boundaries of the structure's foundation, vehicle parking space and a yard area as shown on the approved grading plan. Pads should not exceed 5,000 square feet in total area."

I believe the additional items these Council members discussed would be detrimental to the sound design of hillside structures, if included in the lot pad definition. There are a number of scenarios where removal of surface features to meet a novel lot pad limit reduce functionality and safety of a residence:

- Reducing the width of walkways or not allowing fill placement on the uphill side of a residence to the main floor will reduce accessibility for those with disabilities, especially wheelchair access.
- Pools are a large source of water and were instrumental to fire fighters during the 2017 wildfire. Emergency personnel used sump pumps and immediately had 20,000 gallons of water to use to combat fires around hillside residences. Pools were the only line of defense for properties that used wells for water, which couldn't pump water once the power was turned off. Including pools in the lot pad grading equation will force removal of the pools, which is detrimental to fire protection for the property and the safety of the surrounding area.

- Landscaping areas and terraces provide for buffers during fires. Structures that had adequate setbacks of lawns or concrete terraces were much easier to protect than residences with slopes and vegetation right up against the residence. Removal or reduction of these features is detrimental to the project because it would force a smaller buffer from fire protection.
- Driveways cannot be included in the Lot Pad Grading definition. Driveways are included in the Site Coverage calculation and shouldn't be part of Lot Pad Grading. Including driveways would take up the entire 5000 square feet on many properties and make it impossible to build a house on such properties. It would also force reduction in the width of the driveways, limiting access for fire truck and emergency personnel.
- I also completely disagree that a deck should be included in the lot pad grading definition. Decks do not include any grading. There is no pad required for a deck. Decks are the opposite of grading. They allow for a usable surface without requiring any grading. The lot pad grading guideline is specifically about ***grading***. Including decks would be overly restrictive and contrary to the hillside guidelines.

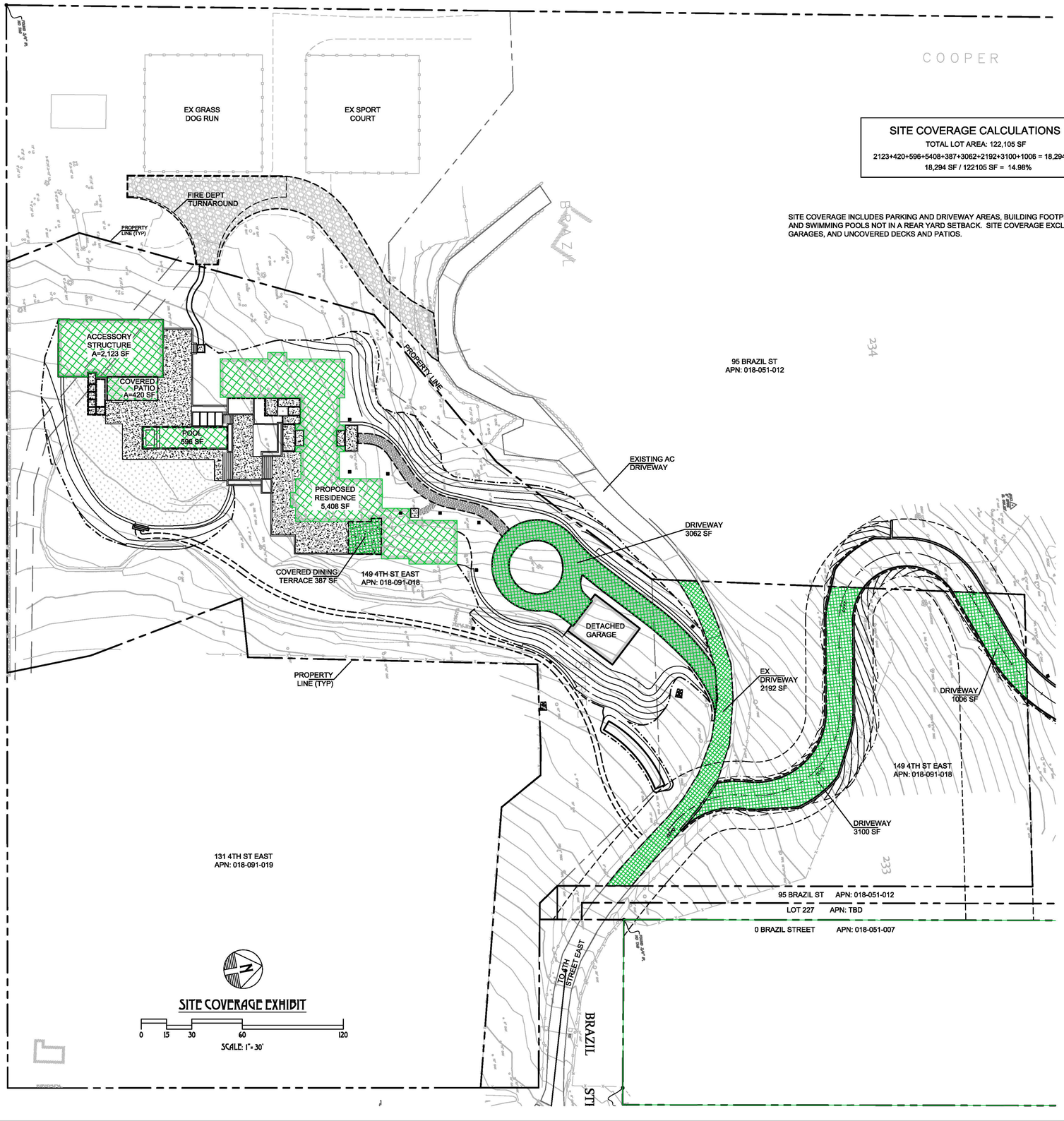
Moreover, the novel interpretation of the Pad Grading Guideline would make it impossible to achieve an appropriate drainage design for the sites. Hillside terrain requires fill placement on the uphill side of structures to prevent inundation of drainage. Proper design of drainage from a structure requires that we slope away from the residence to pull surface runoff away from the foundation. Hillside terrain requires grading design on the downhill side of the structure as well. Grading on the downhill side supports the structure, provides level access for patios, and provides access around the structure for maintenance and emergency personnel. We can achieve goals of access using a few different design techniques, including by building a deck that attaches to the downhill side of the structure.

For these Projects, the above design considerations are important because they will compromise the drainage design if the grading around the structure, including decks is included in the pad grading calculations. Depending on the existing slope, decks on the downhill side of the structure, and/or the flat area on the uphill side of the structure can be significant portion of the pad area. ***This demonstrates that a 5000 square-foot pad limitation on a property is unrealistic and from an engineering standpoint makes it impossible to achieve the safest and most appropriate design.***

I believe a total 5,000 square foot pad area on a property, with a novel approach to what should be included in calculating the pad sizes, is not realistic and is detrimental to achieving the safest design for hillside structures from an engineering perspective, and in compliance with the other guidelines and standards. This is evidenced by the fact that every property in the neighborhood exceeds this limit. The City has approved hillside projects for every other site in the neighborhood that exceed 5,000 square feet. Proper design of the grading and drainage and fire protection around a residence necessitates larger pad areas. That is why we suggested a multi-tiered approach with multiple pads to provide the basic necessities of a design and still meet the intent of the Hillside Guidelines. Please don't hesitate to contact me if you have any questions or need additional information.

Sincerely,

Chad S Moll, PE
Principal Engineer
Bear Flag Engineering, Inc.



SITE COVERAGE CALCULATIONS

TOTAL LOT AREA: 122,105 SF

2123+420+596+5408+387+3062+2192+3100+1006 = 18,294 SF

18,294 SF / 122105 SF = 14.98%

SITE COVERAGE INCLUDES PARKING AND DRIVEWAY AREAS, BUILDING FOOTPRINTS, COVERED DECKS AND PATIOS, AND SWIMMING POOLS NOT IN A REAR YARD SETBACK. SITE COVERAGE EXCLUDES A FRONT PORCH, DETACHED GARAGES, AND UNCOVERED DECKS AND PATIOS.

BEAR FLAG ENGINEERING INC

CIVIL ENGINEERING
LAND DEVELOPMENT
SEPTIC SYSTEM DESIGN
PROJECT MANAGEMENT
SURVEYING
BUILDING DESIGN

PO BOX 2193, SONOMA, CA 95476
PHONE: (707) 481-9472
BEARFLAGCIVIL@GMAIL.COM

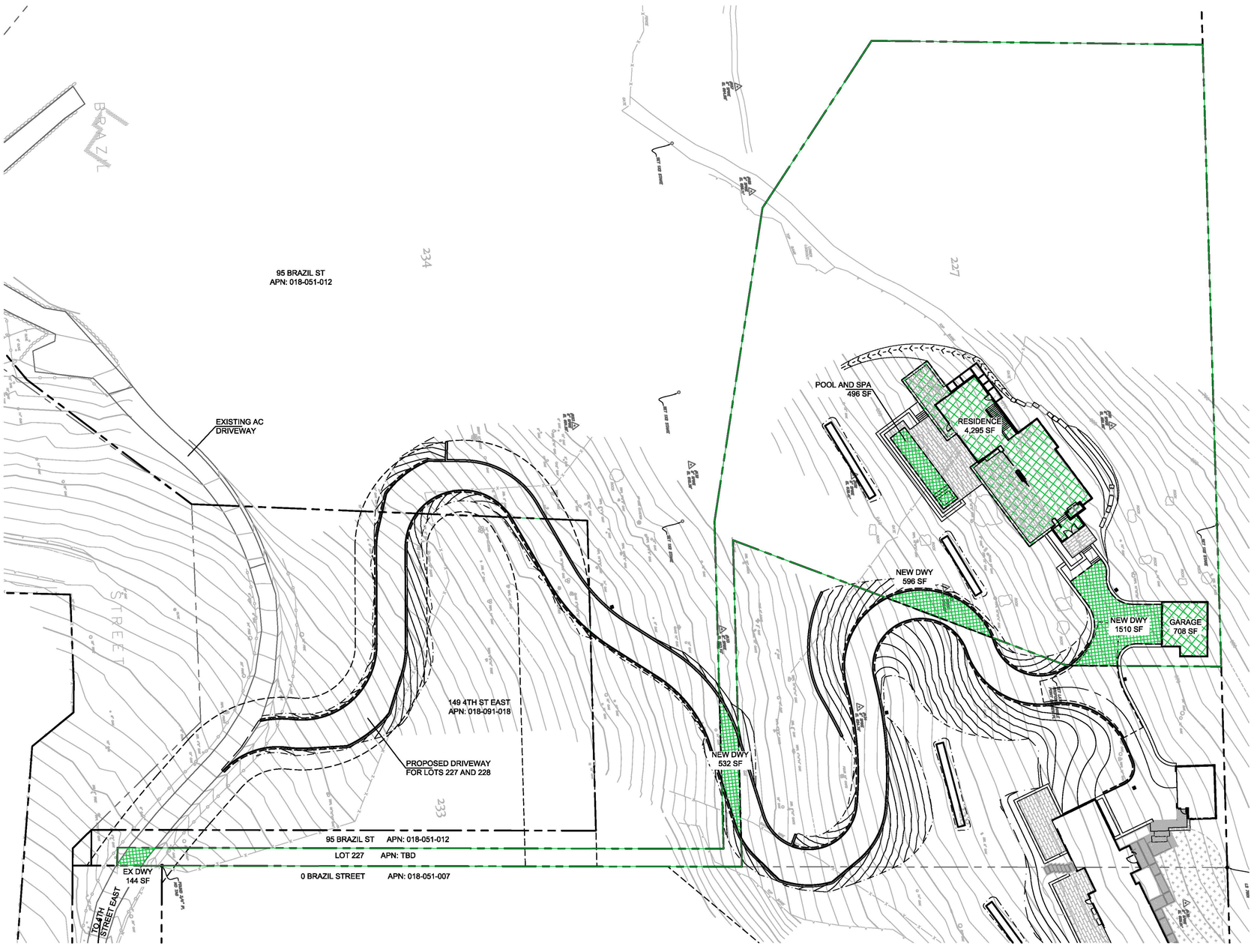
SITE COVERAGE EXHIBIT
149 4TH STREET RESIDENCE

149 4TH STREET EAST, SONOMA, CA
APN: 018-091-018

REV	DATE	DESCRIPTION

DATE:	4/2/2018
DESIGN:	CSM
PROJECT:	16002

SHEET 1 OF 1 SHEET



SITE COVERAGE CALCULATIONS

TOTAL LOT AREA: 87,271 SF

144 + 532 + 596 + 1510 + 708 + 4295 + 496 = 8,281 SF

8281 SF / 87,271 SF = 9.48%

SITE COVERAGE INCLUDES PARKING AND DRIVEWAY AREAS, BUILDING FOOTPRINTS, COVERED DECKS AND PATIOS, AND SWIMMING POOLS NOT IN A REAR YARD SETBACK. SITE COVERAGE EXCLUDES A FRONT PORCH, DETACHED GARAGES, AND UNCOVERED DECKS AND PATIOS.

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SITE COVERAGE EXHIBIT

0 15 30 60 120

SCALE: 1" = 30'

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SITE COVERAGE EXHIBIT
LOT 227 RESIDENCE

BRAZIL STREET, SONOMA, CA 95476
APN: 018-051-007

REV	DATE	DESCRIPTION

DATE:	4/3/2018
DESIGN:	CSM
PROJECT:	16003

SHEET
1
OF 1 SHEET

SITE COVERAGE EXHIBIT

0 15 30 60 120

SCALE: 1" = 30'

SITE COVERAGE CALCULATIONS

TOTAL LOT AREA: 117,024 SF

7496 + 624 + 4670 + 712 = 13,502 SF

13,502 SF / 117,024 SF = 11.5%

SITE COVERAGE INCLUDES PARKING AND DRIVEWAY AREAS, BUILDING FOOTPRINTS, COVERED DECKS AND PATIOS, AND SWIMMING POOLS NOT IN A REAR YARD SETBACK. SITE COVERAGE EXCLUDES A FRONT PORCH, DETACHED GARAGES, AND UNCOVERED DECKS AND PATIOS.

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LOT 228 RESIDENCE
BRAZIL STREET, SONOMA, CA 95476
APN: 018-051-007

REV	DATE	DESCRIPTION

DATE:	4/3/2018
DESIGN:	CSM
PROJECT:	16003

SHEET
1
OF 1 SHEET