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No. 0227 P. 1



Fax

To:	Jamal	From:	Jesse L. Soles
Fax:	(803) 734-5167	Pages:	16 incl. Fax Cover
Phone:	(803) 734-2100	Date:	March 14, 2016
Re:	Flood & Lexington County	cc:	

☐ Urgent
 ☐ For Review
 ☐ Please Comment
 ☐ Please Reply
 ☐ Please Recycle

Comments:

Jamal,

Thank you in advance for any help you may provide in resolving this issue.

Jesse L. Soles

(803) 348-1004



Jesse Soles <jesse.soles@gmail.com>

1604 Terrace View Drive

1 message

Jesse Soles <jesse.soles@gmail.com>
To: Samstrong@lex-co.com

Mon, Mar 14, 2016 at 11:11 AM

Sherry,

I understand Lexington County wants to go through the appeals process. With the information I have provided, I don't understand why it is necessary.

Please review the attachments and give me a call to discuss.

The structural report has been shortened for clarity. I did not see any benefit of my including discussion between the structural inspector and myself.

I also have the FEMA letter stating there is no structural damage. I can't get my hands on that at the moment but, I will forward as soon as I can.

In addition, please review the "Substantial Damage Estimator" provided to me by Lexington County. I have marked items of interest.

Notice on page 2 of 5 the dwelling quality is listed as average while on page 3 of 5 the Depreciation Determination lists the Rating as excellent. Should they not be the same? And it should not be excellent.

Notice on page 4 of 6 Element Percentages Indicate percentages for foundation, superstructure, exterior finish (it's brick), roof (?), and oddly enough, Appliances. These are all included in your total damage assessment.


Do you now understand why declaring my home as substantial damaged does not add up?

Nonetheless, I expect you, Lexington County, will proceed with your evaluation.

Regards,

Jesse L. Soles

2 attachments

 1604 Structural Report Lexington County.pdf
604K

 Lex County Substantial Damage Estimator.pdf
227K

Substantial Damage Estimator

Subdivision	
Subdivision	Elev. of Lowest Floor
Parcel #	ft
Lot Number	Datum

Community	
NFIP Community Name	
Latitude	34.015121684
Longitude	-81.10096313590

Building Address	
Owner's Name	
Street Address	1604 TERRACE VIEW Not Entered
City	WEST COLUMBIA
County	Not Selected
State	South Carolina
Zip	
Phone	
Additional Owner(s)	N/A

Mailing Address	
Owner's Name	
Street Address	Not Entered
City	
County	Not Selected
State	Not Selected
Zip	
Phone	
Care Of	



(Default Image)



(Additional Image)

Substantial Damage Estimator

Structure/Damage/NFIP Information

Year of Construction		Cause of Damage	Flood
Date of Damage	10/4/2015	Duration of Flood	48 Hours
Residence Information	Owner reported that flood waters stayed close to 48 hours in his home. Also reported electric to be out but has repaired already. HVAC completely destroyed.		
Type	Single Family Residence		
Foundation	Crawlspace	Exterior Finish	Brick Veneer
Super Structure	Stud-framed (Standard)	HVAC	Heating and/or Cooling
Roofing	Shingles - Asphalt, Wood (Standard)	Story	One Story (Standard)
Quality	Average ←	Flood Elevation	3.7
Date of Inspection	10/30/2015	Est. Flood Elevation (above Floor)	1.3
Inspected by	K. CRESWELL, M. MILLER		
Inspector Phone	(803) 786-8201		

NFIP Community ID

450129

Firm Panel #	Suffix	Date of FIRM Panel	Firm Zone	BFE	Regulatory Floodway
		10/30/2015	None	0	Possible

Community Specific Information

Substantial Damage Estimator

Square Footage

Total Sq. Ft. 1994	Base Cost	\$111,743.76	Base Cost Per Sq. Ft.	\$56.04
Geographic Adjustment	1			

Cost Adjustments

	Quantity	Units	Unit Cost	Item Cost
Roofing	0	Sq Ft	\$0.00	\$0.00
Heating / Cooling	0	Ea	\$0.00	\$0.00
Appliances	0	Ea	\$0.00	\$0.00
Fireplaces	0	Ea	\$0.00	\$0.00
Porch / Breezeways	0	Sq Ft	\$0.00	\$0.00
Garage	0	Sq Ft	\$0.00	\$0.00

Additional Adjustments

0	Sq. Ft:	\$0.00	\$0.00
0	Sq. Ft:	\$0.00	\$0.00
0	Sq. Ft:	\$0.00	\$0.00
			\$0.00
			\$0.00
Total Adjustments *			\$0.00
Total Replacement Cost			\$111,743.76
Replacement Cost Per Square Foot			\$56.04

* Total Adjustment calculation includes the Geographical Adjustment.

Computed Actual Cash Value

Name of Reference Document	Publication Date	10/30/2015
Depreciation Determination	Rating 6 - Excellent Condition	
Depreciation Percentage	2.90 %	
Computed Actual Cash Value	\$108,503.19	
Other Depreciation Explanation		

Please enter explanation of "Other" selection in box above.

Substantial Damage Estimator

Element Percentages				
	% Breakdown	Item Cost	% Damage	Damage Values
Foundation	8	\$8,939.50	15	\$1,340.93
Superstructure	14.6	\$16,314.59	25	\$4,078.65
Roof Covering	3.8	\$4,246.26	0	\$0.00
Exterior Finish	17.3	\$19,331.67	25	\$4,832.92
Interior Finish	11.5	\$12,850.53	55	\$7,067.79
Doors and Windows	13.8	\$15,420.64	40	\$6,168.26
Cabinets and Countertops	3.9	\$4,358.01	50	\$2,179.01
Floor Finish	6.8	\$7,598.50	75	\$5,698.94
Plumbing	7.5	\$8,380.78	30	\$2,514.23
Electrical	4.3	\$4,804.98	50	\$2,402.49
Appliances	3.6	\$4,022.78	50	\$2,011.39
HVAC	4.9	\$5,475.44	100	\$5,475.44
	100%		Total Estimated Damages	
Total Replacement Cost		\$111,743.76		\$43,770.05

Percent Damaged		
Value Determination	Percent Damaged	Cost Determination
Computed Actual Cash Value	40.3 %	Computed Damages
Not Substantially Damaged		

Damage Summary			
Replacement Cost	\$111,743.76	Total Estimated Damages	\$43,770.05
Depreciation Percentage	2.90 %	Percent of Existing Improvements and Repairs Pre-Disaster	0 %
Computed Actual Cash Value	\$108,503.19	Repair/Reconstruction Percentage	40.3 %
* Per FEMA Publication 213, Actual Cash Value may be used as Market Value.			

Substantial Damage Estimator**Optional User Entered Data****Professional Appraisal****Contractor's Estimate****Adjusted Tax Value**

Tax Assessed Value \$0.00

Community's Estimate

Factor Adjustment 0

Adjusted Tax Assessed Value

Authorized Local Official :

Signature

(Date)

Authorized Local Official :

Print Name

(Date)



DONAN[®]

PREPARED FOR:

MS. ERIN SCOTT
NATIONAL FLOOD SERVICES
7701 COLLEGE BOULEVARD
OVERLAND PARK, KANSAS 66210



JESSE L. SOLES
1604 TERRACE VIEW DRIVE
WEST COLUMBIA, SOUTH CAROLINA 29169
POLICY NUMBER: SF00178142
DONAN PROJECT NUMBER: 21-15100537-0

PREPARED BY:

DONAN ENGINEERING CO., INC.
11321 PLANTSIDE DRIVE
LOUISVILLE, KENTUCKY 40299
800-482-5611
SOUTH CAROLINA COA: 3991

NOVEMBER 10, 2015

PAUL E. IVIE, P.E.
FORENSIC ENGINEER
SOUTH CAROLINA PE: 27841
EXPIRES: 06/30/2016

John G. Donan, Jr., P.E.
Chairman of the Board

J. Lyle Donan, P.E.
President, CEO



CORRESPOND TO:
Donan Engineering Co., Inc.
11321 Plantside Drive
Louisville, Kentucky 40299
800-482-5611
502-267-6976 fax

November 10, 2015

Ms. Erin Scott
National Flood Services
7701 College Boulevard
Overland Park, Kansas 66210

RE: **Jesse L. Soles**
1604 Terrace View Drive
West Columbia, South Carolina 29169
Policy Number: SF00178142
Donan Project Number: 21-15100537-0

Dear Ms. Scott:

At your request, on October 24, 2015, a study was made on the house at the above-referenced address. The purpose of the study was to determine the extent of structural damage from a recent flood event. Mr. Jesse Soles was present to point out areas of concern and to provide firsthand information. This letter, with the attached photographs, is the report of my findings and conclusions.

Description of Property

For purposes of this report, the house is considered to face east toward Terrace View Drive (Photographs 1 through 4). The house is a single-story, wood-framed structure supported by brick piers and is over a crawlspace with brick walls. The exterior walls are covered with brick veneer, and the roof is clad with dimensional-style asphalt shingles. The house was built in about 1968, and Mr. Soles has owned the house approximately 16 years.

The house is located adjacent to the Senn Branch that flows to the Saluda River. The house is located approximately 1300 feet west-southwest from the Saluda River (Figure 1). United States Geological Survey (USGS) topographic maps show that the property elevation is between 190 and 200 feet above the

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COMPONENT TESTING



WAC FORENSICS

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North American Vertical Datum of 1988 (NAVD88). Figure 2 displays a portion of a topographic map containing the property.

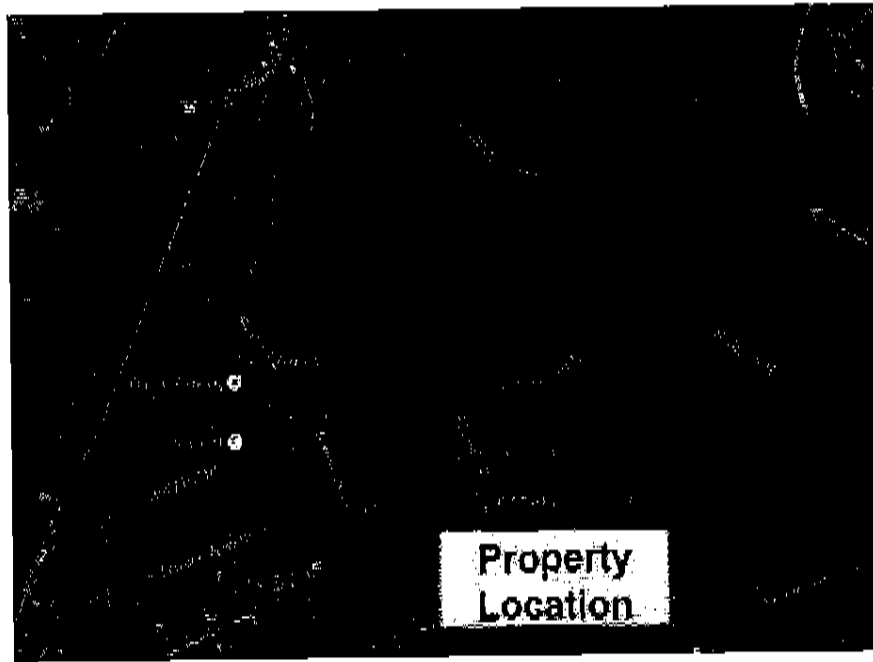


Figure 1: Aerial Photograph¹

¹ <https://www.trails.com/topo.aspx?lat=34&lon=-81.03&s=50&name=Columbia>

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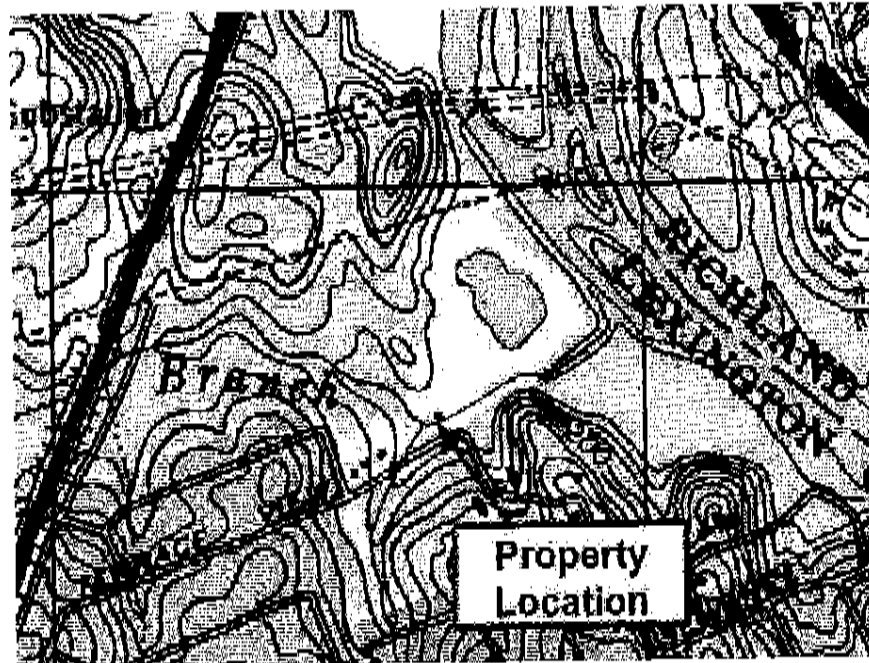


Figure 2: Topographic Map²

²<https://www.trails.com/topo.aspx?lat=34&lon=-81.03&s=50&name=Columbia>

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Weather

An historical rain event occurred in South Carolina between October 2, 2015, and October 5, 2015. Total rainfall accumulations exceeded 20 inches in some areas, and the three- and five-day rainfall totals were considered 1,000-year events in some areas (Figure 3).³ At least 20 dams failed in South Carolina as a result of the storm event, including 17 in nearby Richland County.⁴ Hundreds of roads and bridges were closed throughout the state as a result of flooding.

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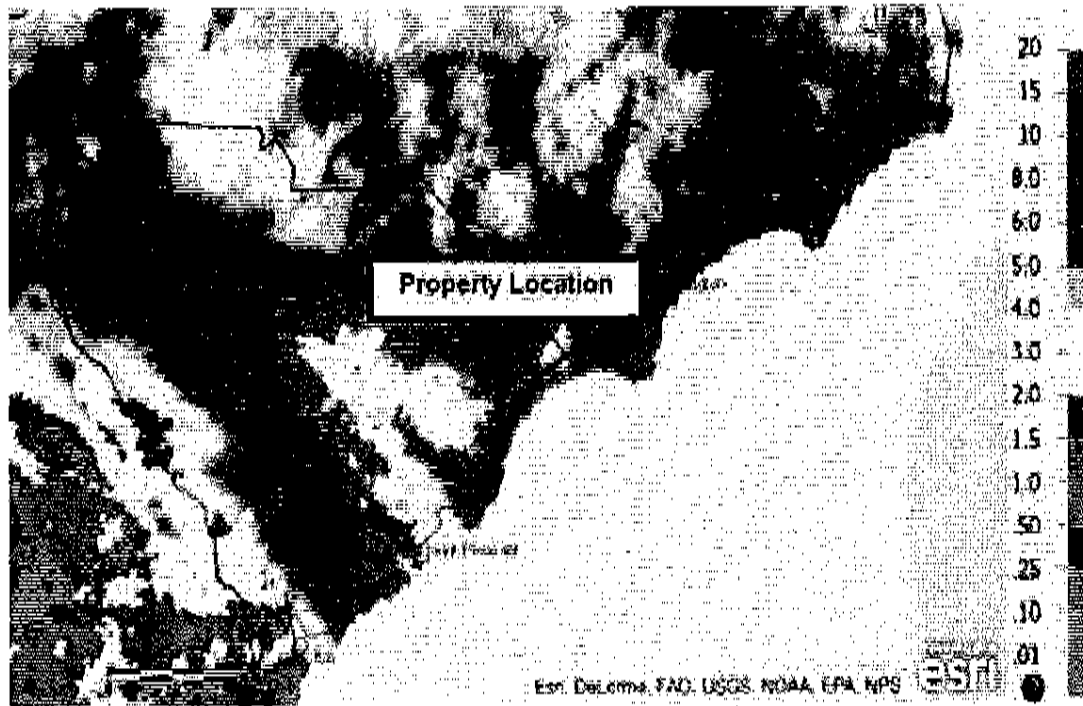


Figure 3: Total Rainfall in South Carolina October 2 through 5, 2015⁵

Rainfall totals in the Columbia area exceeded 21 inches in some areas, and the one-day, two-day, and three-day rainfall records were broken.⁶ Most river gages in the area ceased functioning during the flood event. The USGS surveyed high-water marks throughout the flood-affected areas. A survey point, located about 1300 feet east of this property, documented a high-water mark at 5.10 feet above the ground (Figure 4).⁷

⁵ NWS/NOAA Advanced Hydrologic Prediction Service

⁶ <http://www.weather.gov/cas/prelimRainTotals.html>

⁷ <http://stn.wim.usgs.gov/STNWeb/Public/HWMInfoPage?siteId=14803&hwmId=11516>

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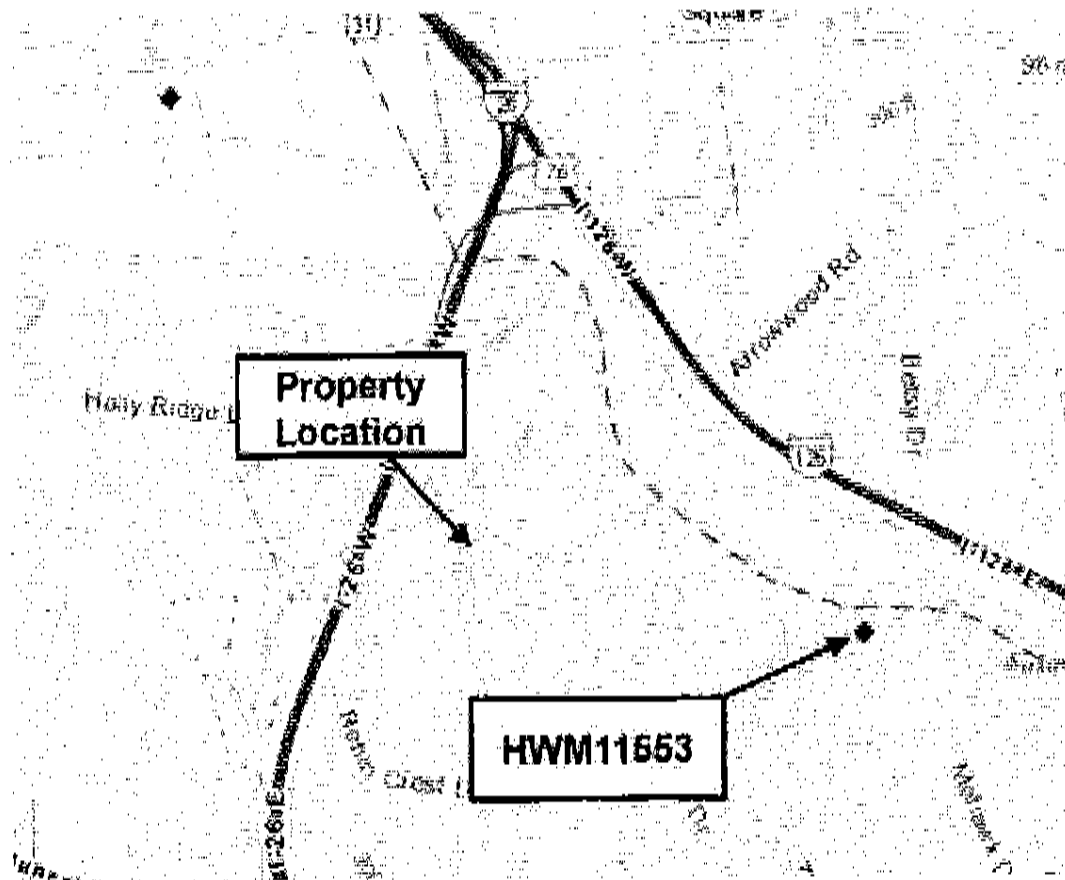


Figure 4: USGS Documented High Water Mark -- October 2015⁸

Analysis

Flood Events

Flood events can be divided into two categories: rising floodwater and moving floodwater. Rising floodwater damages structures by wetting the building and the soils that support them. Typically, structural elements exposed to a single water event will dry and retain their structural integrity. However, repeated exposure to moisture can cause deterioration over time. The surrounding soil is not as forgiving. The effect of water in soil can cause differential settlement of the foundation system even with a single exposure, depending on the grade of the

⁸ <https://mapsengine.google.com/09777640683063138757-06188793550136435775-4/mapview/?authuser=0>

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land, soil type, volume of water, and other conditions. Rising floodwater can also damage a building by exerting hydrostatic and buoyant forces on the structure. Hydrostatic and buoyant forces are in direct proportion to the weight of water and the material properties of the affected object. These conditions apply both lateral and uplift forces to the structure.

Moving floodwaters are very damaging even at low speeds. They impart lateral and vertical forces on surfaces and structures. The amount of surface area exposed to these forces, its shape, and how it is founded play a critical role in its ability to resist damage. The forces associated with moving floodwater are hydrostatic, buoyant, hydrodynamic, and frictional. Hydrodynamic forces are associated with the water's momentum as it moves against structural elements. Frictional forces along the ground surface cause the soil to erode and can undermine foundations. Any of these forces can cause localized or a complete failure of a building.

Differential Settlement

When soil experiences a force, it compresses and distributes the load to the surrounding soil. The weight of a structure imposes a weight load to the soil under the structure. Virtually all structures built upon soil experience settlement because of compression of the underlying soil. The specific characteristics of settlement, including rate and amount of settlement, vary widely because of the variation of soil characteristics and construction practices. Settlement may occur immediately after loading and stop immediately, or it may continue for many years. The best ways to control settlement are to use proper soil to support the structure, to compact the soil to the proper density, and to manage surface water drainage around foundations. Building on different types of soil within the building footprint can also cause differential settlement.

Settlement becomes a problem when a house does not settle uniformly. The non-uniform settlement of a house is referred to as differential settlement and is usually indicated by cracks in foundations, cracks in interior or exterior wall coverings, cracks in masonry veneers, uneven rooflines, unlevel floors, or leaning walls. If differential settlement continues and is not remedied, it will eventually cause damage to the structure above the foundation.

Conclusions

The high-water marks indicate that floodwater up to about 39 inches deep inundated this property. The water depth filled the crawlspace and reached

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approximately 16 ½ inches above the interior floor elevation of the house. Rising flood water impacted this property by wetting the building.

Soils have been eroded from alongside some of the house due to roof runoff. No evidence of moving flood water, such as undermining of soils from beneath the brick walls or piers, was observed on this property. Any moving water that affected this property was of insufficient velocity to cause structural damage to the building.

Hydrodynamic and hydrostatic forces from floodwater would result in lateral pressure on the structure. Structural damage to the piers and foundation would be exhibited by walls leaning in the same direction or cracks in the foundation walls accompanied by lateral displacement. Except for the east face of the northeast corner of the exterior of the house, the east interior walls of the house, and the two chimneys, the corners and walls of the house are plumb or nearly plumb. The house has not been damaged by hydrodynamic or hydrostatic forces.

Buoyant, and possibly hydrostatic, forces cause vertical pressure on the structure. No evidence of any upward forces were found in the house. The house was not damaged by buoyant or upward hydrostatic forces.

Frictional forces from a flood can result in scour of the soil around a foundation.⁹ In order for scour to affect the underside of the foundation, openings must be present adjacent to or beneath the foundation. No scour or openings were observed adjacent to or beneath the foundation. Moving water did not affect the soils below the foundation. The house was not damaged by frictional forces from the flood.

⁹ Scour is the localized erosion of soil by moving water around an object in the water column.

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Recommendations

The following recommendations are given based on past engineering experience and on the basis which that experience allows with no warranty implied. The following repair plan is an *idea* of the work that possibly will be required to return the building to its pre-flood condition. The suggestions do not constitute engineering design work. It is recommended that a licensed contractor be retained to perform the repair.

Summary of Conclusions

In summary, based on what is known at this time, I am of the opinion that:

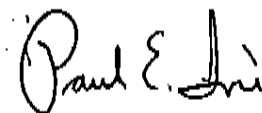
- Floodwater up to 39 inches above grade and 16 ½ inches in the interior inundated this property.
- The house was not structurally damaged by hydrodynamic, hydrostatic, frictional, or buoyant forces from the flood event.

This report is based on presently known and available facts, data, and information. To the extent that additional or different facts, data, or information develops or is discovered after the issuance of this report, Donan reserves the right to amend, alter, or change the report as needed to reflect consideration of said additional or different facts, data, or information.

We appreciate your confidence in our professional services.

Sincerely,

DONAN ENGINEERING CO., INC.



Paul E. Ivie, P.E.
Forensic Engineer
South Carolina PE: 27841
Expires: 06/30/2016