KEAST & HOOD CO.

Structural Engineers

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1350 Connecticut Avenue NW Suite 412 Washington DC 20036

January 31, 2013

Mark Wenger
Mesick Cohen Wilson Baker Architects
3302 Craggy Oak Court
Williamsburg, VA 23188

Re: George Washington's Ferry Farm Feasibility Study - Memorandum

Dear Mark:

Keast & Hood Co. has reviewed and discussed the concept proposed by your firm for the reconstruction of the Ferry Farm farmhouse. It is proposed to site the house over the existing site and foundation ruins while only minimally contacting the site.

In coordination with your firm, Keast & Hood has proposed a foundation system consisting of helical piles. These piles can be visualized as screws of approximately 12" diameter, typically turned into the soil to depths of between 10 and 20 feet. An advantage of this foundation system is that there are minimal spoils; essentially leaving all the soil in its current location. A geotechnical investigation would be required to validate this foundation system, but Keast & Hood's previous experience is that it or something similar would be capable of supporting the required loads.

The piles would support a grid of pre-cast concrete beams set just at the existing grade level, with their depth creating the "crawl space" below the reconstructed house. Exterior beams would have continuous ledges to support an exterior brick masonry foundation wall matching the historic construction. All the beams could have wood sills anchored to them as a base for the wood framing of the remainder of the structure. The same system with precast concrete planks and additional piles would be used to support the three masonry fireplaces and chimneys of the reconstruction.

In summary, Keast & Hood has reviewed the proposed concept for the project and believes that the solution discussion above is a feasible means to reconstruct the structure over the existing archaeology. For reference, this concept is further illustrated on drawing sheet S1.0.

Sincerely,

KEAST & HOOD CO.

Matthew J. Daw, PE, LEED® AP Craig D. Swift, PE, LEED® AP

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STRUCTURAL ENGINEERS

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Memorandum

Date:	June 14, 2015		
To:	John Mesick	**From:**	Mat Daw
Company:	Mesick Cohen Wilson Baker Architects	**Via:**	Email
Re:	GW Ferry Farm	**Copy:**	Julia Tembunkiart (K&H)
Job No:	12813		Mark Wenger (MCWB)
Subject:	Load Bearing Capacity of Existing Cellar Walls		John Martin (MCWB)

Remarks:

It is Keast & Hood's understanding that the existing cellar wall will be repointed and restored prior to the addition of courses of stone and construction above. It has been reported that the existing stone is Aquia Creek Sandstone. As such, the stone should be surveyed for delamination common in exterior uses of Aquia Creek sandstone and repaired prior to loading. Once repaired, the compressive strength of the stone wall is significantly larger than the bearing capacity of the soil. The Geotechnical Report provided by ECS and dated August 9, 2013 indicates an allowable bearing capacity of 2000 psf. With the minimal load applied to the wall due to the extension of the stone wall height and support of the stud wall above, the 16" wide cellar wall will apply a load less than the allowable soil capacity. As such, the wall is sufficient to support the additional load described.

Please do not hesitate to contact our office if there are any questions regarding our recommendation or if we can be of any continued assistance.

Keast & Hood

Mat J Daw

Matthew J. Daw, P.E., LEED® AP