

# GEOTECHNICAL REVIEW

## FIELDS PENN HOUSE

PROJECT NAME:	Fields Penn House	DATE OF VISIT:	NA
LOCATION:	208 W. Main Street - Abingdon, VA	FSE PROJECT No.:	218523
CLIENT:	Town of Abingdon	MET WITH:	NA
CONTACT:	Rick Statzer	FSE REP:	George Cross, PE

**Scope:** Requested to perform a geotechnical review of past information provided to the Town regarding the stabilization of the Field Penn House and to provide design recommendations for micropile support piers.

**Findings:** Reviewed previous reports provided to include those by Foundation Systems Engineering in 1999, Spoden and Wilson in 2006, Davis Buckley Architects and Planners in 2015, Pons and Associates in 2015 and Bundy Architecture and Engineering in 2018.

The reports indicate a moist, high plasticity, clay soil in a stiff consistency in the upper stratum over a wet, clay soil with soft to very soft consistency with depth. Limestone bedrock was encountered at depths ranging from 33 to 44 feet below the ground at the corners of the main building. At one of the borings where rock coring was performed a large void/seam was encountered in the limestone.

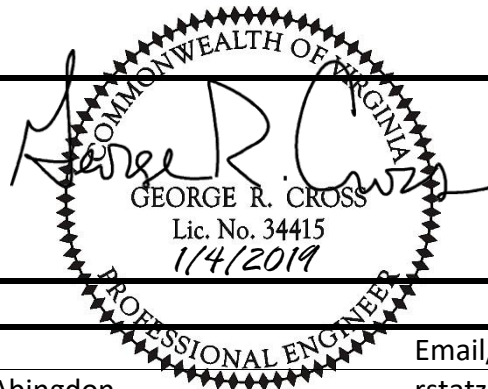
Recommendations for stabilizing the building foundations have varied from adding new shallow concrete foundations to supporting the building on steel piles of various types. It appears that the main building had a concrete foundation placed under the original building foundation brick. These brick foundations have been observed to have deteriorated over time.

**Assessment:** The report by Bundy Architecture and Engineering recommended using micropile supported foundations with a pile spacing of 5 foot. This method is in our opinion the best suited given the complexity of the subsurface conditions on this site.

We recommend that the micropiles be mechanically attached to the newer concrete foundations under the old brick foundations. In locations where these concrete foundations do not exist, then new foundations or other methods to prevent point loading the old brick should be used.

We recommend a minimum pile diameter of 3 inches and embedment depth of 5 feet into the limestone bedrock. The piles should be installed by an experienced specialty geotechnical contractor. For the pile socket design into the limestone, an ultimate adhesion stress of 90 psi may be used for the grout to bedrock bond.

Attachments: (none)



Distribution		
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Prepared by: George Cross, PE      Report Date: Jan. 4, 2019