



DEPARTMENT OF CODE ADMINISTRATION

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**TO: CODE ADMINISTRATION CUSTOMERS AND STAFF**

**FROM: JOHN CATLETT, DIRECTOR**

**SUBJECT: SOIL EVALUATION, 1 & 2 FAMILY DWELLING CONSTRUCTION**

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This policy is intended to provide guidance for determining the general soils suitability for 1 & 2 family dwelling construction.

**New Dwellings**

Prior to permit issuance, new dwellings shall have a soil suitability report - signed and sealed by a Commonwealth of Virginia licensed design professional.

Soil suitability report – or geotechnical exploration report - shall follow accepted methods, guidelines and practices set forth by ASTM, ASCE, AASHTO, AEG, etc. Site exploration bore logs shall be included detailing USCS soil classification and physical properties, including any potential problems discovered (expansive ‘marine clay’ soils, plastic soils, contaminated soils, wetlands, expansive soils, high water table, buried debris, uncontrolled fill, low bearing capacity, slope instability, etc.). The report shall include recommended foundation designs and if problem soils encountered, recommended soil remediation.

The licensed design professional or his/her agent shall inspect the foundation in-situ soil prior to placement. The inspection shall verify soil load-bearing capacity based on the soil suitability report and verify the foundation will bear on natural in-situ soils or on properly controlled and certified structural fill. Furthermore, the licensed design professional or his/her agent shall evaluate backfill soil/material suitability.

The plans examiner shall attach a copy of the report to the approved field plan set and upload the report into the permit case. The building inspector shall confirm all required soils and foundation inspections are performed as required by the Virginia Residential Code and the soil suitability report.

The building official may waive the soil suitability report requirements based on justification, such as a recent soil report from adjacent lots or previous reports from the same lot. When the report requirement is waived, the plans examiner shall document the waiver within the permit case and on the approved plan sets.

## **Additions to Existing Dwellings**

Prior to permit issuance, two options are available for additions to existing dwellings:

1. Submit a soil suitability report - signed and sealed by a Commonwealth of Virginia licensed design professional as outlined within “New Dwellings” requirements.
2. The building foundation shall be designed per the Virginia Residential Code’s (VRC) minimum presumptive soil load-bearing capacity – 1,500 pounds per square-foot. A licensed design professional or his/her agent shall inspect the foundation in-situ soil prior to footing placement. The inspection shall verify soil load-bearing capacity based on the soil suitability report or VRC’s minimum presumptive soil load-bearing capacity – 1,500 pounds per square-foot. Furthermore, the licensed design professional or his/her agent shall verify the foundation will bear on natural in-situ soils or on properly controlled and certified structural fill and evaluate backfill soil/material suitability.

## **Adding Additional Stories (Loads) to Existing Foundations (“Pop-Up” additions)**

Prior to permit issuance, an evaluation report - signed and sealed by a Commonwealth of Virginia licensed design professional - is required to verify the existing foundation and supporting in-situ soils are adequate to transfer the added “pop-up” addition loads.

## **Decks and Porch (any size) and Accessory Structures (Sheds/Detached Garages) greater than 200ft<sup>2</sup>**

No requirements prior to permit issuance. During the foundation inspections, the building inspector shall determine if problem soils are present and if so, necessary remediation.

## **Retaining Walls**

- Retaining walls supporting less 2 feet of unbalanced fill do not require a building permit.
- Prior to permit issuance, retaining walls supporting between two feet and five feet of unbalanced fill have three options: either comply with Code Administration’s “Retaining Wall Detail Package” or; base the foundation design per the Virginia Residential Code’s minimum presumptive soil load-bearing capacity – 1,500 pounds per square-foot or the pool foundation shall be or; submit a soil suitability report - signed and sealed by a Commonwealth of Virginia licensed design professional as outlined within “New Dwellings” requirements above.
- Prior to permit issuance, retaining walls supporting more than five feet of unbalanced fill shall submit a soil suitability report - signed and sealed by a Commonwealth of Virginia licensed design professional as outlined within “New Dwellings” requirements above.

In addition, a licensed design professional or his/her agent shall inspect the foundation in-situ soil prior to placement. The inspection shall verify soil load-bearing capacity based on the soil suitability report or VRC’s minimum presumptive soil load-bearing capacity – 1,500 pounds per square-foot. Furthermore, the licensed design professional or his/her agent shall verify the foundation will bear on natural in-situ soils or on properly controlled and certified structural fill and evaluate backfill soil/material suitability.

## **In-Ground Swimming Pool**

Prior to permit issuance, two options are available for in-ground swimming pools:

1. Submit a soil suitability report - signed and sealed by a Commonwealth of Virginia licensed design professional as outlined within “New Dwellings” requirements.
2. The building foundation shall be designed per the Virginia Residential Code’s minimum presumptive soil load-bearing capacity – 1,500 pounds per square-foot. A licensed design professional or his/her agent shall inspect the foundation in-situ soil prior to placement. The inspection shall verify soil load-bearing capacity based on the soil suitability report or VRC’s minimum presumptive soil load-bearing capacity – 1,500 pounds per square-foot. Furthermore, the licensed design professional or his/her agent shall verify the foundation will bear on natural in-situ soils or on properly controlled and certified structural fill and evaluate backfill soil/material suitability.

## **Foundation Drainage Systems**

No requirements prior to permit issuance. During the foundation drainage inspection, the building inspector shall determine if problem soils are present and if so, necessary remediation. Foundation drainage shall be installed in accordance with the Virginia Residential Code.

## **Foundation Repairs**

Prior to permit issuance, foundation repairs - bowed or bulged foundation walls or slabs, wall or slab displacement cracks, underpinning, foundation drain installation and/or backfill replacement, pilings, helical piers, cement or chemical grouting, slope stabilization, etc. - shall have a soil suitability report - signed and sealed by a Commonwealth of Virginia licensed design professional as outlined within “New Dwellings” requirements. The report shall include probable cause of damage and repair recommendations.

A licensed design professional or his/her agent shall inspect the foundation in-situ soil prior to placement. The inspection shall verify soil load-bearing capacity based on the soil suitability report and confirm fluid pressure design is appropriate as necessary. Furthermore, the licensed design professional or his/her agent shall verify the foundation will bear on natural in-situ soils or on properly controlled and certified structural fill and evaluate backfill soil/material suitability.

## **Structural Slab**

Prior to permit issuance, two options are available for structural slabs:

1. Submit a soil suitability report - signed and sealed by a Commonwealth of Virginia licensed design professional as outlined within “New Dwellings” requirements.
2. The building foundation shall be designed per the Virginia Residential Code’s minimum presumptive soil load-bearing capacity – 1,500 pounds per square-foot. A licensed design professional or his/her agent shall inspect the foundation in-situ soil prior to placement. The inspection shall verify soil load-bearing capacity based on the soil suitability report or VRC’s minimum presumptive soil load-bearing capacity – 1,500 pounds per square-foot. Furthermore, the licensed design professional or his/her agent shall verify the foundation will bear on natural in-situ soils or on properly controlled and certified structural fill and evaluate backfill soil/material suitability.