

Board of Zoning Adjustment
District of Columbia
CASE NO. 17123
EXHIBIT NO. 33













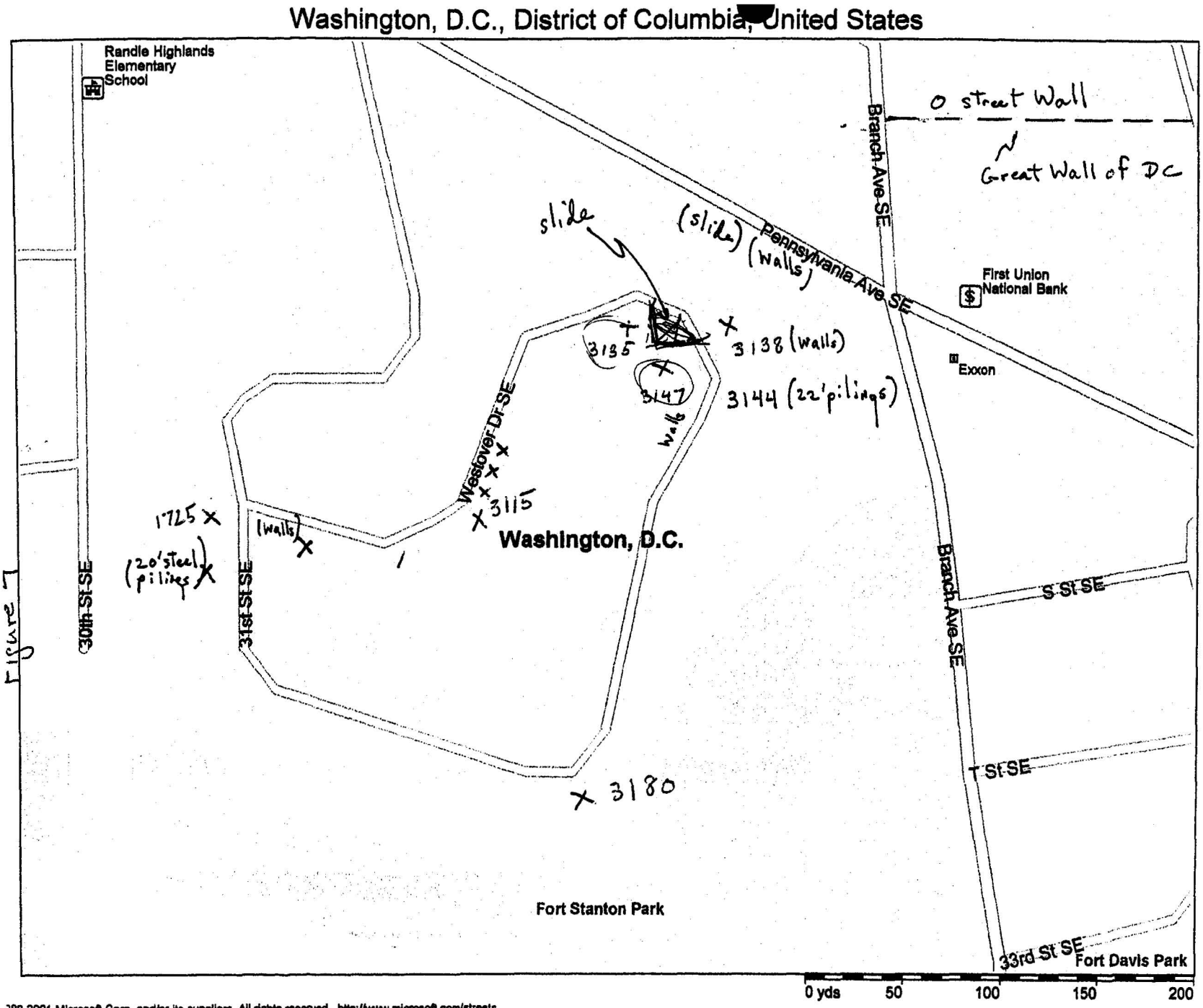



Figure 7

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**Piedmont Geotechnical, Inc.**
14735 Wrights Lane • Waterford, Virginia 20197-1601
Metro (703) 589-1002 • FAX 1-540-882-3629

February 27, 2004

Mr. Garet Bornstein
1 Winterberry Court
Bethesda, Maryland 20817

Re: Soil Mapping Services
3147 Westover Drive, SE
Washington, DC
PGI No. 0740DC

Dear Mr. Bornstein:

Piedmont Geotechnical, Inc., has completed the authorized soil mapping at the referenced property. Our report is enclosed with this letter.

Given the extreme slopes and likelihood that "marine clay" soils will be encountered, the property should not be developed unless a thorough subsurface exploration and engineering evaluation confirm that construction is feasible. The questionable soils are identified in Fairfax County, Virginia, as "Gravelly and Loamy Sediments", and they are considered a problem soil due to instability. Further information on the recommended guidelines to deal with the problems that can be encountered in "marine clay" soils is available on the Fairfax County web site: http://www.co.fairfax.va.us/dpwes/publications/pfm/4.htm.

We trust that the enclosed report is satisfactory. Please call if you have any questions, or if we may be of further service.

Sincerely,

**Piedmont Geotechnical, Inc.**

Daniel S. Rom, P.E.
President

DSR/jbp

# Piedmont Geotechnical, Inc.

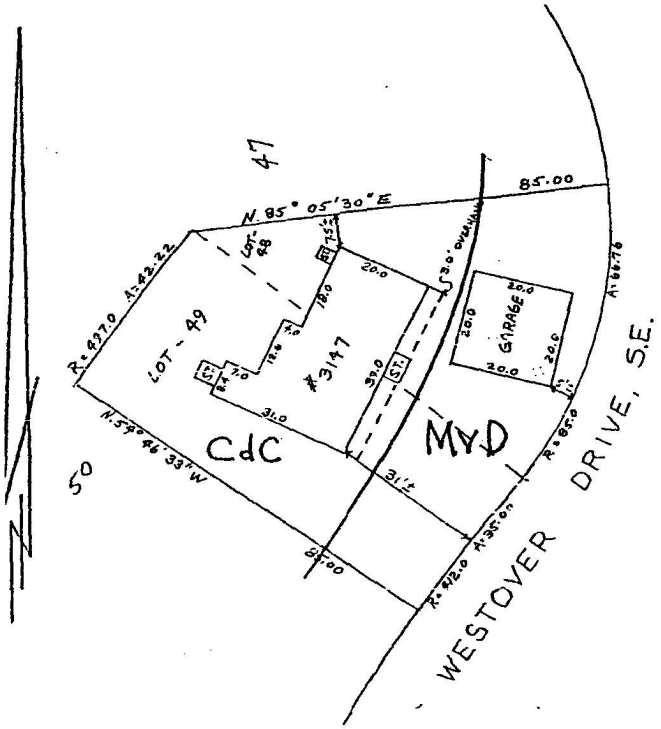
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## Soil Evaluation

| | |
|---|---|
| Requested By: | Garet Bornstein |
| Current Use: | Single-Family Residence |
| Location: | 3147 Westover Drive, SE<br>Washington, DC |
| Evaluation By: | Daniel S. Rom, P.E. |
| Lot and Square: | Lots 48 and 49, Square 5664 |
| Date: | February 24, 2004 |

Daniel S. Rom
2-27-04

SOIL MAP — Soils on Coastal Plain Sediments Physiographic Province




SCALE: 1" = 40'

| Map Legend | Slope Symbols | Erosion Symbols |
|---|---|---|
| Soil Map Symbol Mv | A: 0-2% Slope | + Soil Accumulation |
| Soil Name Muirkirk | B: 0-8% | 0. No Erosion |
| Slope: D | C: 8-15% | 1. Slight Erosion |
| Erosion: 3 | D: 15-40% | 2. Moderate Erosion |
| | E: 40% and Greater | 3. Severe Erosion |

| SOIL MAP SYMBOL | SOIL SERIES NAME | SLOPE RANGE % | ESTIMATED % OF SITE |
|---|---|---|---|
| Soil Map Number | Soil Series Name | Slope Range in Percent | Estimated % Each Soil Type |
| **CdC** | **Chillum-Urban Land Complex** | **8-15** | **60** |
| **MvD** | **Muirkirk Variant Complex** | **15-40** | **40** |
| | | | TOTAL: 100% |

| POTENTIAL SOIL PROBLEMS | YES/NO | SOIL NO. |
|---|---|---|
| Subsurface Drainage | NO | - |
| Foundation Support | YES | CdC, MvD |
| Slope Stability | YES | CdC, MvD |
| Erosion Potential | YES | CdC, MvD |
| High Seasonal Water Table | NO | - |
| High Shrink-Swell Clays | YES | MvD |
| Poor Surface Drainage | NO | - |
| Shallow Depth to Bedrock | NO | - |
| Flood Plain (Alluvial) | NO | - |
| Poor Septic Field Potential | YES | CdC, MvD |
| Hydric Soils Potential Wetlands | NO | - |

GEOTECHNICAL REQUIREMENTS

Since the **Muirkirk Variant Complex** soils are recognized "Problem Soils", they should not be disturbed unless a thorough geotechnical engineering report has been prepared by a registered professional engineer. Construction must address foundation support, slope stability, erosion potential, and high shrink-swell clays.

DESCRIPTION OF SOIL CHARACTERISTICS

**(MvD) Muirkirk Variant Complex, 15 to 40 percent slopes**

This complex consists of strongly sloping to steep soils on the higher elevations of the coastal plain. The slopes are dominantly convex. Muirkirk soils are highly variable and occur together in an intricate pattern.

A representative profile has a surface layer of dark yellowish brown loamy sand about 5 inches thick and a subsurface layer of yellowish brown loamy sand about 6 inches thick. The subsoil, between depths of 11 and 60 inches, is strong brown sandy loam in the upper part and red clay in the lower part.

This complex has poor potential for use as building sites because of slope and poor stability. Cuts or excavations are difficult to stabilize, and the clay frequently slides, slumps, or flows down the surface of cuts onto roads or other areas below. This complex, especially where it has been disturbed or graded, is severely limited or even sometimes dangerous for most building purposes. Because of instability, the clay, particularly where it is under pressure or load, can squeeze out from under foundations, allowing footings or basements to crack and settle. In extreme cases, buildings have been severely damaged. Banks and fills constructed from the clayey material have been known to collapse, causing severe damage to property. Disturbed areas are highly erodible, and this presents a pollution hazard to nearby streams if adequate sediment control devices are not installed. Because of slope and low available water capacity, this complex has poor potential for landscaping, lawns, and vegetable gardens. It has poor potential for most recreational uses because of slopes and sandiness.

**(CdC) Chillum-Urban Land Complex, 8 to 15 percent slopes**

This soil unit consists of moderately sloping, well-drained soils of the Chillum series, most areas of which have been altered by grading for housing developments, shopping centers, industrial areas, and similar uses. This unit is at high elevations of urbanized areas of the coastal plain. A representative soil profile has a surface layer of very dark gray silt loam about 2 inches thick and a subsurface layer of pale brown silt loam about 10 inches thick. The subsoil, about 16 inches thick, is brown heavy silt loam in the upper part and yellowish red silty clay loam in the lower part. The substratum, between depths of 28 and 60 inches, is strong brown very gravelly sandy loam.

This complex has only fair potential for most building purposes because of slope. Soil material and fill material of this complex have only fair potential for lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens because of slope. Areas that are very deeply cut or excavated are generally very gravelly and droughty and, therefore, have poor potential for vegetation. Most areas of this complex have only fair to poor potential for most recreational uses because of slope and limited open space.

NOTE:

This report and the accompanying soil map are based on a limited site investigation of the property. Soil characteristics, descriptions, and potential problems are based on the site conditions at the time of the investigation. Any disturbance that drastically alters the original site conditions may affect the interpretations of this report.