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STEEP SLOPES DISTURBANCE REPORT

FOR

PROPOSED SITE IMPROVEMENTS

**BLOCK 152.02, LOTS 176, 179 & 186
TOWNSHIP OF WEST ORANGE
ESSEX COUNTY, NEW JERSEY**

**APPLICANT
MONTCLAIR STABLES LLC**

PREPARED BY

A handwritten signature in dark ink, reading "Robert M. Cunningham", is positioned above a horizontal line.

ROBERT M. CUNNINGHAM, PE
NEW JERSEY LICENSE #GE31540

August 26, 2025

INTRODUCTION

This report is submitted in support of an application to the Board of Adjustment of The Township of West Orange for site plan and variance approval. The Applicant, Montclair Stables LLC, has purchased the existing equine facility on Woodland Avenue and proposes to make improvements to the site. The primary improvements are the re-orientation and reconstruction of the existing outdoor sand riding arena and the re-location of the paved parking lot and driveways. The Applicant also proposes to make improvements to Nicholas Avenue; a paper street located at the rear of the property. This facility has used part of Nicholas Avenue as a driveway for decades. The proposed improvements include extending the driveway to connect to the paved portion of Nicholas Avenue near its intersection with Cannon Street. The driveway would function as a one-way driveway which would exit near the Cannon Street intersection and there would be new security gates at both ends.

There are presently two buildings on the site, a barn and an indoor riding arena which are connected by a one-story concourse. There are no changes proposed to the configuration of these buildings. The Existing Conditions Plan in the application set, depicts a dwelling and related improvements which existed on Lot 176 until recently. The dwelling was removed under a demolition permit issued by the West Orange Construction Code Office.

The trees that are scheduled for removal are indicated on Sheet SE-2 of the application set, on the Landscape Architect's drawings, and on the Proposed Conditions Steep Slopes Plan.

Steep slopes on the site, immediately adjacent to the site, and in the portion of Nicholas Avenue in which development is proposed are indicated by color shading on the Existing Steep Slopes Plan. As per West Orange's Steep Slope and Natural Features Ordinance, sloping areas within the 4 categories steeper than 9.99% slope and having a horizontal run of 10 feet or more are mapped by color shading.

Within the project area and on adjacent lots, the following steep slope quantities were identified:

10% to 14.99% slopes: 4,631 square feet	These slopes are indicated by green shading.
15% to 19.99% slopes: 1,626 square feet	These slopes are indicated by pink shading
20% to 24.99% slopes: 1,614 square feet	These slopes are indicated by blue shading
15% and greater slopes: 6,960 square feet	These slopes are indicated by orange shading.

The soil type mapped by the NRCS at this location is BouB: Urban Land Boonton Substratum Complex. This soil type is not considered to be highly erodible. The water table is expected to be below 80 inches. The water infiltration capacity of the most restrictive layer is expected to be 0.06 to 0.20 inches per hour. The available water supply capacity of the profile from 0" to 60" is expected to be about 4.4 inches.

No large surface boulders or rock outcrops were observed within the study area.

The steeper slopes (15% and above) occur over rather short horizontal runs with the longest run of slopes 25% and greater being 18 feet. All of the slopes that are 15% and greater seem to be associated with prior development and construction activities such as the construction of the existing riding arena, the grading of the paddock at the east end of the site, the construction of the office building parking lot on Lot 132 to the east, and the storm drain construction in Nicholas Avenue.

PROPOSED SLOPE DISTURBANCE

Proposed disturbance of steep slopes is indicated on the Proposed Conditions Steep Slope Plan by red polylines drawn around the areas where slopes in each steep slope category will be disturbed. The square footage of such proposed disturbance is shown by red numbers adjacent to each polyline.

Disturbance of steep slopes is proposed as part of the re-configuration of the sand riding arena. The steep slopes shown near the center of the proposed arena will be eliminated as the final grade of the arena will be level.

Disturbance of steep slopes is proposed for the modification of the existing gravel driveway near the southeast corner of the barn. This disturbance is proposed to provide access to and from the manure dumpster pad for a full-size tandem axle roll-off truck and will offer better k-turn capability than presently exists for other vehicles. The man-made 25% slope adjacent to this portion of the driveway will not be re-graded, rather a low modular block retaining wall will be constructed at the base of the slope to provide for the approximately 3 ½ foot widening.

Disturbance of steep slopes will also occur associated with the easterly extension of the driveway in Nicholas Avenue. The slopes to be disturbed here are also believed to have been man-made and their horizontal runs are relatively short. Proposed grading in Nicholas Avenue to the north of the proposed driveway has been adjusted since the first issue of the plans to minimize the proposed disturbance. Disturbance of some of the slopes between 10% and 14.99% on the south side of the proposed driveway could be eliminated by installation of a retaining wall which could also reduce the number of trees to be removed. This option was eventually not chosen because of the possible hazards associated with the wall, the possible need for a guard rail and the fact that the trees that would be saved are nearly directly above the Township's storm drain pipe and accordingly, should be removed.

We propose that any disturbed areas of the steep slopes that are not being eliminated should be treated with erosion control matting as part of the final stabilization process. We offer that potential for soil erosion will not be significantly impacted. We also offer that lateral soil support for any structures or property improvements will not be impacted by this proposal.

The proposed disturbance of steep slopes is tabulated on the Proposed Conditions Steep Slope Plan.

A variance is requested for disturbance of steep slopes between 20% and 24.99%. 829 square feet of this scope class will be disturbed being 51 36% of the total area where only 20% disturbance is permitted. Please note that of the 829 square feet of slope disturbance, 548 square feet will result in the elimination of steep slopes.

A variance is requested for disturbance of steep slopes 25% and greater. 983 square feet of this scope class will be disturbed being 14.12% of the total area where no disturbance is permitted. Please note that of the 983 square feet of slope disturbance, 624 square feet will be eliminated or re-graded to ve 5% or less.

CONCLUSION

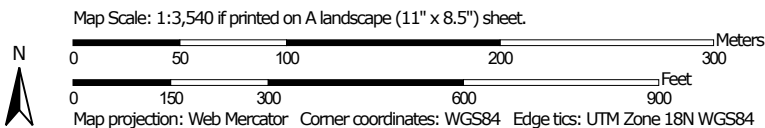
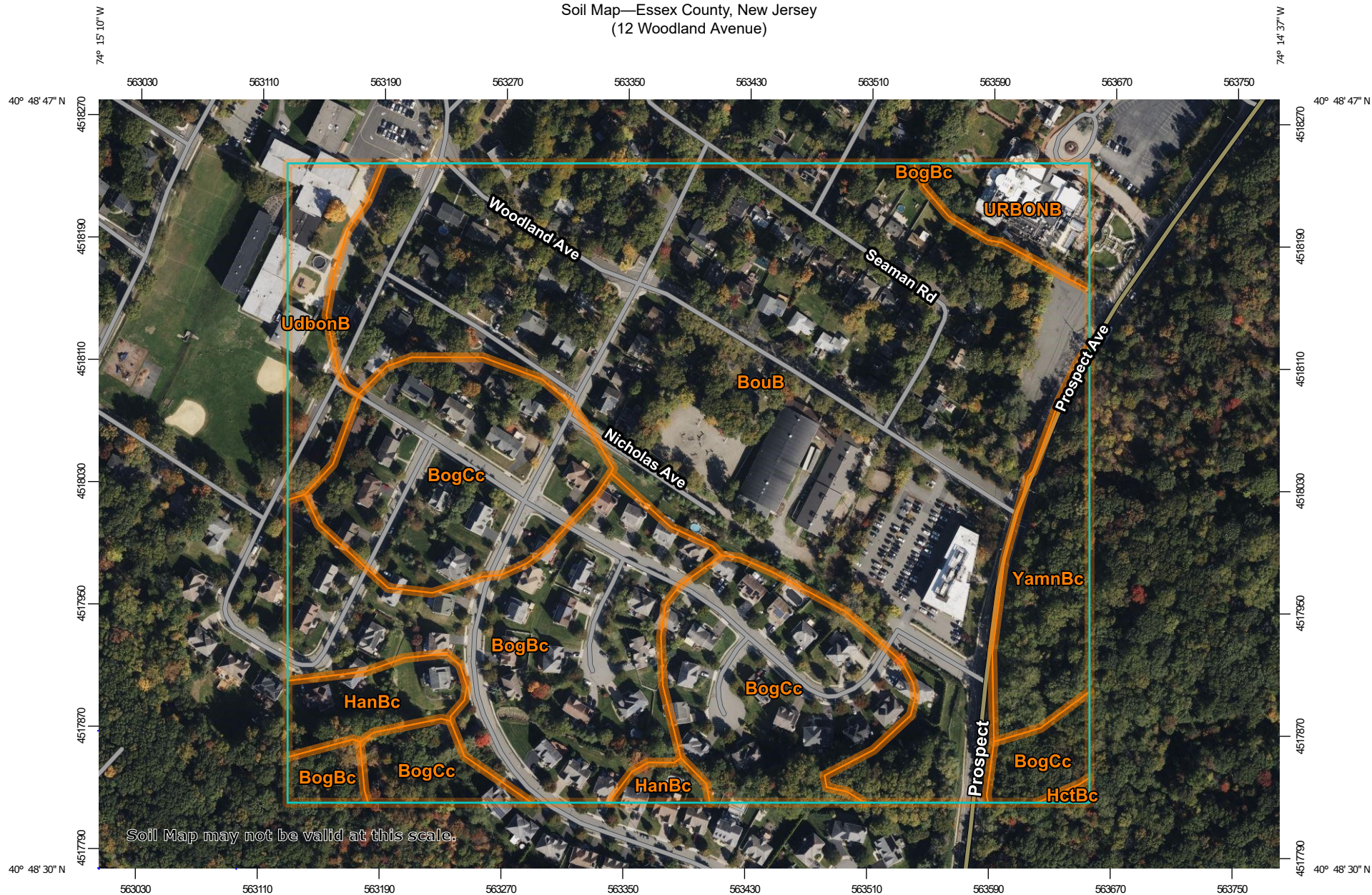
The designer believes that the proposal complies with the provisions of the Stormwater Management Ordinance, reduces stormwater runoff to adjacent properties and public roads and does not create increased demand on the public drainage system.

ENCLOSURES

Existing Conditions Steep Slopes Plan

Proposed Conditions Steep Slopes Plan

Soil Map—Essex County, New Jersey
(12 Woodland Avenue)



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

1/5/2025
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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, New Jersey

Survey Area Data: Version 20, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 10, 2022—Oct 16, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BogBc	Boonton loam, 0 to 8 percent slopes, extremely stony	8.2	15.1%
BogCc	Boonton loam, 8 to 15 percent slopes, extremely stony	11.9	21.8%
BouB	Boonton - Urban land, Boonton substratum complex, 0 to 8 percent slopes	26.7	48.9%
HanBc	Haledon silt loam, 0 to 8 percent slopes, extremely stony	1.6	2.9%
HctBc	Hasbrouck silt loam, 0 to 8 percent slopes, extremely stony	0.1	0.1%
UdbonB	Udorthents, Boonton substratum, 0 to 8 percent slopes	2.0	3.6%
URBONB	Urban land, Boonton substratum, 0 to 8 percent slopes	1.4	2.6%
YamnBc	Yalesville loam, 0 to 8 percent slopes, extremely stony	2.7	5.0%
Totals for Area of Interest		54.6	100.0%

Essex County, New Jersey

BouB—Boonton - Urban land, Boonton substratum complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: b12f

Elevation: 50 to 500 feet

Mean annual precipitation: 30 to 64 inches

Mean annual air temperature: 46 to 79 degrees F

Frost-free period: 131 to 178 days

Farmland classification: Not prime farmland

Map Unit Composition

Boonton and similar soils: 50 percent

Urban land, boonton substratum: 40 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Boonton

Setting

Landform: Ground moraines

Landform position (three-dimensional): Upper third of mountainflank, center third of mountainflank

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Coarse-loamy basal till derived from basalt

Typical profile

A - 0 to 5 inches: loam

BA - 5 to 8 inches: silt loam

BE - 8 to 17 inches: silt loam

Bt - 17 to 30 inches: silt loam

Btx1 - 30 to 40 inches: gravelly fine sandy loam

Btx2 - 40 to 47 inches: fine sandy loam

CBt1 - 47 to 58 inches: loamy sand

CBt2 - 58 to 72 inches: loamy sand

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 20 to 36 inches to fragipan

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: F144AY037MA - Moist Dense Till Uplands

Hydric soil rating: No

Description of Urban Land, Boonton Substratum

Setting

Landform: Ground moraines

Landform position (three-dimensional): Lower third of mountainflank, upper third of mountainflank, center third of mountainflank

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Typical profile

H1 - 0 to 12 inches: material

H2 - 12 to 47 inches: silt loam

2CBt1 - 47 to 58 inches: loamy sand

2CBt2 - 58 to 72 inches: loamy sand

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: Unranked

Minor Components

Udorthents, boonton substratum

Percent of map unit: 10 percent

Landform: Ground moraines

Landform position (three-dimensional): Lower third of mountainflank, upper third of mountainflank, center third of mountainflank

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Data Source Information

Soil Survey Area: Essex County, New Jersey

Survey Area Data: Version 20, Sep 3, 2024





SLOPE DISTURBANCE TABLE

AREA 1: 0% - 10.0%	100% DISTURBANCE IS PERMITTED
AREA 2: 10.0% TO 14.99%	2,291 SQUARE FEET 50% DISTURBANCE IS PERMITTED
AREA 3: 15% TO 19.99%	490 SQUARE FEET 25.63% DISTURBANCE IS PERMITTED
AREA 4: 20.0% TO 24.99%	820 SQUARE FEET 51.36% GROSS DISTURBANCE 549 SQ. FT. WILL BE RE-GRADED TO BE BETWEEN 0% AND 5% SLOPE
AREA 5: 25% AND GREATER	983 SQUARE FEET 14.12% DISTURBANCE 624 SQ. FT. WILL BE RE-GRADED TO BE BETWEEN 0% AND 5% SLOPE 0% DISTURBANCE IS PERMITTED

EXISTING SLOPES TABLE

AREA 1: 0% - 10.0%	4,631 SQUARE FEET
AREA 2: 10.0% TO 14.99%	1,626 SQUARE FEET
AREA 3: 15% TO 19.99%	1,614 SQUARE FEET
AREA 4: 20.0% TO 24.99%	6,960 SQUARE FEET
AREA 5: 25% AND GREATER	8,960 SQUARE FEET

USDA SOILS DATA

SOIL TYPE: BOUL BOUL LAND-BOUNTON SUBSTRATUM COMPLEXES, BOUNTON-URBAN LAND-BOUNTON SUBSTRATUM COMPLEXES, DEPTH TO WATER: VARIABLE > 80 INCHES, DEPTH TO BEDROCK: > 72 INCHES.

PROPOSED CONDITIONS STEEP SLOPES PLAN

PROPOSED SITE IMPROVEMENTS
MONTCLAIR STABLES
TAX LOTS 176, 179 & 186 BLOCK 152.02
TAX MAP SHEET 77
THE TOWNSHIP OF WEST ORANGE
ESSEX COUNTY, NEW JERSEY

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AUGUST 25, 2025
ORIGINAL DWG. DATE
AUGUST 25, 2025

Robert M. Cunningham
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PROFESSIONAL ENGINEER, N.J. LICENSE GE31340