

# MANCUSO ESQ.

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September 3, 2024

Susan Meaney, Chair  
Planning Board Town of Washington  
10 Reservoir Drive  
Millbrook, NY 12545

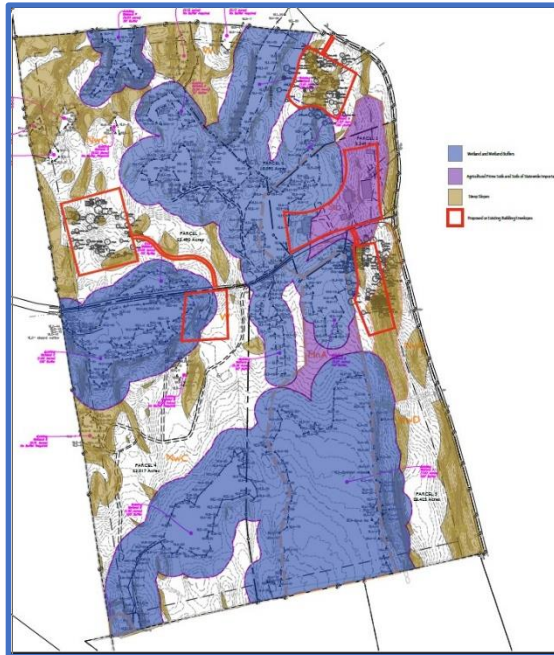
Re: 515 Woodstock Road Subdivision Application

Dear Chair Meaney and Members of the Planning Board:

I am writing as a resident and business owner in the Town regarding the proposed updated subdivision application for 515 Woodstock Road.

At its August 6 workshop, under the guidance of Chair Meaney, the Board and its consultants conducted thoughtful, substance-laden, and sometimes lively discussion concerning this application. I would like to direct the Board to several highly relevant issues.

The information submitted by the applicants, as required by Town's Land Subdivision Regulations, shows a parcel with extremely limited development potential. The applicants presented a constraints map (right), which identifies physical features that limit development. To highlight those features, we have color-coded the wetlands and wetland buffers in blue, agricultural soils in purple, and the steep slopes in brown. The applicants' proposed building envelopes are outlined in red.<sup>1</sup>

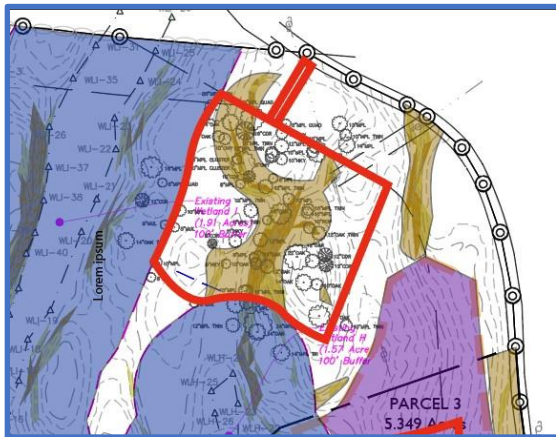


<sup>1</sup> In many instances, constraints overlap.

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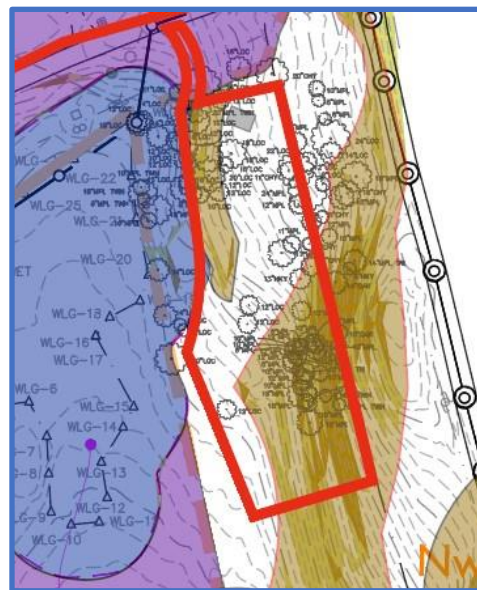
September 3, 2024  
Page 2

This map illustrates how this site, permeated by steep slopes and wetlands, offers extremely limited options for additional building. Currently, two homes already exist on this site. The map designates these areas as new parcels 3 and 4. The subdivision application proposes three additional locations for home building: lots 1, 2, and 5. The applicants have proposed building envelopes, to identify locations where future owners would be permitted to build certain structures.<sup>2</sup> In outlining the building envelopes, the applicants are not making a concession, but identifying the reality of the challenges this site presents. A close examination of these proposed building locations shows that, even



within the building envelopes, steep slopes may prohibit building.

Parcel 2 (left) shows a ridge of steep slopes, much of it exceeding 25% running right through the center of the building



envelope.

And Parcel 5's long, narrow building envelope (right) is narrowed further by steep slopes running along its long sides and blocking its proposed access driveway.

The Town adopted a Natural Resources Inventory earlier this year. In the NRI, the Town observes, “[t]he Town’s varied topography offers both outstanding scenic views

<sup>2</sup> The types of structures that could be included in the building envelope have yet to be determined.

and challenges for land development and environmental protection.”<sup>3</sup> It emphasizes the particular importance of steep slopes in land use decision-making. “In general, slopes greater than 15 percent pose significant limitations to development and are among the most sensitive environmental features in the landscape.”<sup>4</sup>

It continues,

“[d]evelopment of steeply sloped landscapes can increase the danger of erosion, landslides, and polluted runoff.[.] Steep slope disturbance can introduce sediment to streams and waterbodies, affecting downstream water quality. Grading and construction on steep slopes can also be expensive, and *such sites may not be able to support a properly functioning public or private sewer system.*<sup>5</sup> (Emphasis supplied).

As the constraints map shows only those slopes with grades of 20% or more, the full extent of steep slopes is not known.

Another of this site’s physical features — barely mentioned in the applicants’ initial filings — and that may likely pose an even more serious impediment to safe and sensible development is its soils.

“Soils . . . play a fundamental role in determining suitability for land uses. Soil characteristics determine potential for agricultural production as well as vulnerability to flooding, soil erosion or instability, and efficiency at filtering pollutants and wastes.”<sup>6</sup>

The applicants provided a narrative addendum to its Full Environmental Assessment Form, which discusses at some length the suitability of soils for agricultural production.<sup>7</sup> But notably absent is any discussion of the soils’ suitability for the as-of-right residential construction allowed should this subdivision be approved.

The applicants consulted the United States Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey for the soil data contained in

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<sup>3</sup> *A Natural Resources Inventory for the Town of Washington and Village of Millbrook*, February 9, 2024, p. 19, *hereinafter*, NRI.

<sup>4</sup> NRI, p. 23.

<sup>5</sup> *Id.*

<sup>6</sup> NRI, p. 30.

<sup>7</sup> *See*, applicants’ FEAF Part F, narrative response to question C.2.b.

its Full Environmental Assessment Form.<sup>8</sup> The information consists of technical descriptions of the four soil types found on this parcel and the acreage of each type. But this data does not answer essential questions about the soils: what can they be used for? In fact, Web Soil Survey users can run reports to help them identify suitable uses at a given location. These reports provide USDA rankings based on proposed uses.

We ran these reports (attached) for this parcel based on the following uses:

- Dwellings without basements
- Dwellings with basements
- Septic tank absorption fields
- Stormwater management – infiltration

The soils identified in the attached reports and their percentages on the site match the applicants' information.<sup>9</sup>

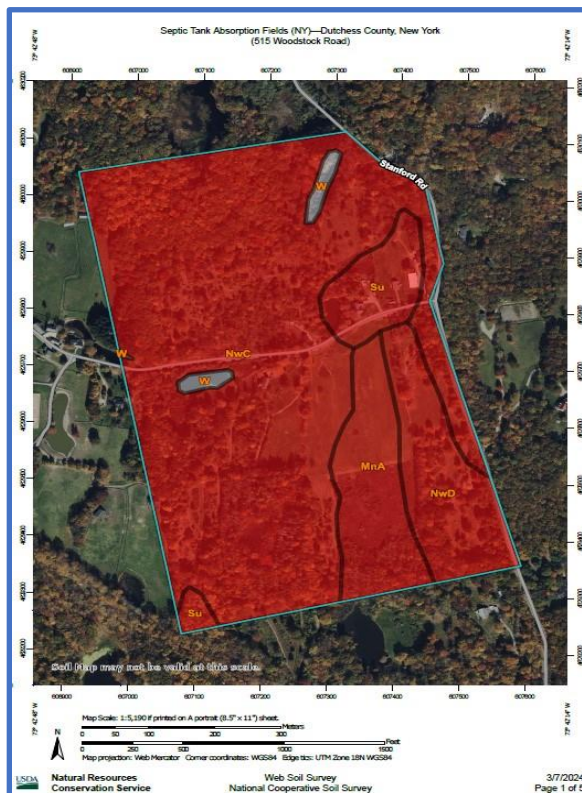
The reports conclude that every soil types found on this site is the worst for the proposed uses noted above.

The USDA Web Soil Survey reports come with useful maps. The report maps for 515 Woodstock Road include color-coding of the various soils according to their suitability ranking for a specified purpose. This color coding is similar to traffic signal coding, with green indicating the soil is not limited for the proposed purpose, and red indicating that the soils are very, or most limited. For each of the purposes noted above, all the soils on this site were classified as the worst. Here is what the map looks like for each of the purposes noted above:

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<sup>8</sup> FEAF, Appendix E.

<sup>9</sup> The acreage is slightly different as we did not have the exact dimensions that we could superimpose on the Web Soil Survey map. But this does not alter any of the findings of conclusions to be drawn from these reports.



As you can see, the map is entirely red throughout the site.

This indicates that all the soils at this location, whether classified as Massena silt loam, Nassau Cardigan complex (C or D), or Sun silt loam, are the worst types for building dwellings, serving as sewage waste filtering, or handling stormwater runoff. The septic suitability report, for example, reports that all the soils here are “very limited,” by which it means that “the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.” It continues, “Some soils are underlain by loose sand and gravel or fractured

bedrock at a depth of less than 2 feet below the distribution lines. In these soils, the absorption field may not adequately filter the effluent, particularly when the system is new. *As a result the ground water may be contaminated.*”<sup>10</sup> (Emphasis supplied.)

The Town’s subdivision regulations direct that “[l]and to be subdivided shall be of such character that it can be used safely for building purposes.”<sup>11</sup> These USDA reports indicate that this site may be unsuitable for further residential development.

<sup>10</sup> See, United States Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey. Web Soil Survey report for 515 Woodstock Road, Septic Tank Absorption Field (NY), p. 4 (see full report, *attached*).

<sup>11</sup> Town of Washington Land Subdivision Regulations §11(a).

## Endangered/Threatened Species.

### Breeding habitat of Bog Turtle, federally designated threatened species, found in multiple areas of Subject Site.

The Endangered Species Act is a federal law, enacted in 1973, mandating the identification of endangered and threatened species caused by various factors, including the “present or threatened destruction, modification, or curtailment of its habitat or range,” “the inadequacy of existing regulatory mechanisms,” or “other natural or manmade factors affecting its continued existence.”<sup>12</sup> In 1997, the U.S. Fish and Wildlife Service listed the Bog Turtle as threatened, meaning that it is “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”<sup>13</sup> The Bog Turtle is located in two areas of the US, a northern range and a southern range. The Northern Bog Turtle habitat, where the Town of Washington is located, is considered more imperiled. A 2019 US Fish and Wildlife Service study showed the northern Bog Turtle range has decreased by 39% since 1997.<sup>14</sup> The map above shows the turtle’s 1997 range in red hatching, and its 2019 range, in green.<sup>15</sup> The Town of Washington falls squarely within this remaining range.

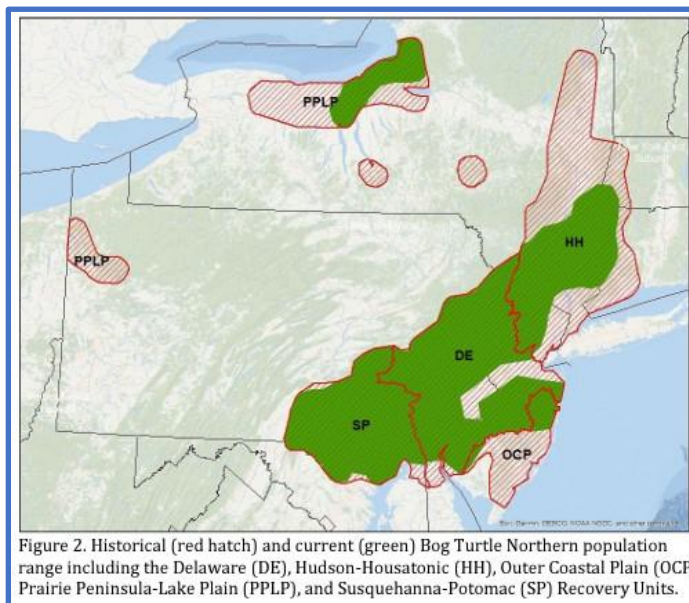


Figure 2. Historical (red hatch) and current (green) Bog Turtle Northern population range including the Delaware (DE), Hudson-Housatonic (HH), Outer Coastal Plain (OCP), Prairie Peninsula-Lake Plain (PPLP), and Susquehanna-Potomac (SP) Recovery Units.

<sup>12</sup> 16 USC §1533(a).

<sup>13</sup> <https://www.fws.gov/species/bog-turtle-glyptemys-muhlenbergii>; 16 USC §1532(20).

<sup>14</sup> Erb, L. 2019. Bog turtle conservation plan for the Northern population. A report to the Pennsylvania Division of Fisheries & Wildlife and the U.S. Fish and Wildlife Service. 102 pp, p.1.

<sup>15</sup> Erb, Bog turtle conservation plan for the Northern population, p.4.

This map graphically illustrates that, even with its listing as a threatened species, the Bog Turtle habitat range has been greatly diminished. Decisions made at the local level can either further imperil or help stabilize its range and prevent the Bog Turtle from becoming an endangered species.

The applicants' habitat/biodiversity report identified at least three locations on this parcel contained "all three of the critical elements required by Bog Turtles for breeding habitat."<sup>16</sup> It also identified another three locations as Bog Turtle dispersal/commuting areas.<sup>17</sup>

Development is one of the primary causes for the Bog Turtle's extensive habitat loss.<sup>18</sup> The applicants' report noted that its Bog Turtle habitat assessments are "preliminary in nature," with "[t]he intent of this assessment [being] . . . to determine if general wetland conditions existed on the Study Site that might justify a more in-depth habitat evaluation."<sup>19</sup> With its finding that the Subject Site did in fact contain the breeding habitat critical elements, "[a]n in-depth Phase 1 bog turtle habitat inventory and Phase 2 presence/probable absence survey would provide additional information as to whether the Study Site could support that species, if any impacts were proposed to Wetlands E, H, J, or their immediate surroundings."<sup>20</sup> What exactly is immediate surroundings? As noted by the Town's planning consultant, the US Fish and Wildlife Service identifies those surroundings as a 300-foot buffer.<sup>21</sup>

**Bats. Suitable habitat exists on 80% of the site and is part of a forested network providing ample access to foraging areas.**

The applicants' biodiversity report identified eight locations on this parcel as potential habitat for the Indian and Northern Long-eared Bat. These bat species are both listed as endangered species. Endangered means any species which is in danger of extinction

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<sup>16</sup> *Habitat and Biodiversity Survey Report*, Clear Property, 515 Woodstock Road, Town of Washington, Dutchess County, NY Prepared for LRC Group, July 16, 2024 (*hereinafter*, Applicants Biodiversity Report) p.32.

<sup>17</sup> *Id.*

<sup>18</sup> Erb, Bog turtle conservation plan for the Northern population, p.6.

<sup>19</sup> Applicants Biodiversity Report, p.6.

<sup>20</sup> Applicants Biodiversity Report, p.34.

<sup>21</sup> [https://www.fws.gov/sites/default/files/documents/Bog%20Turtle%20Conservation%20Zones\\_April%202001\\_508C.pdf](https://www.fws.gov/sites/default/files/documents/Bog%20Turtle%20Conservation%20Zones_April%202001_508C.pdf)

throughout all or a significant portion of its range.<sup>22</sup> The report found that *allbut 19 acres of the 90.87-acre site* was suitable habitat for these endangered bat species.<sup>23</sup>

The report found that “Presence/probable absence surveys for bats would be necessary to determine whether any listed bat species actually occupy the site.”<sup>24</sup> The report suggests that this is not necessary adding “if proposed bat habitat were proposed to be cleared during the maternity season.” In effect, the applicants are proposing that they should not be concerned with determining whether endangered species may exist within this highly suitable habitat and, further, that it’s OK to destroy potential bat habitat so long as it occurs from November 1 through March 31st. This statement runs contrary to the report’s other observations that:

The Study Site was surrounded in all directions by extensive privately owned forested habitat, providing travel corridors for listed bat species in virtually all directions. . . . There is ample fragmented forested habitat interspersed with residential, commercial and institutional development within 5 miles of the Project site [likely bat foraging radius]. Bats likely have sufficient forest cover in the local landscape to move to and from the site under forest cover from the north, east, south and west.”<sup>25</sup>

Thus, this parcel is a key link in a network of potential endangered bat habitat.

### **Independent Evaluation Required.**

The Town’s Comprehensive Plan — the document that memorializes the Town’s land use vision, objectives and goals — includes as a key objective the “[p]rotect[i]on of] valuable natural habitats and the bio-diversity they support.”<sup>26</sup> To further that objective, the Plan includes policies to “[d]irect development away from large and high-quality areas of contiguous forest, areas of contiguous meadow, and high-quality habitat complexes,” and to “[p]rotect or restore corridors of undeveloped

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<sup>22</sup> 16 USC §1532(6).

<sup>23</sup> Applicants Biodiversity Report, p. 29-30.

<sup>24</sup> Applicants Biodiversity Report, p.34.

<sup>25</sup> Applicants Biodiversity Report, p.28. n

<sup>26</sup> Town of Washington Comprehensive Plan, Adopted December 10, 2015, p.43.



land between habitat patches, fauna migration corridors, and habitats.”<sup>27</sup> The Town Land Subdivision regulations reaffirm these policies in the context of subdivision approvals. It states:

Proper provision shall be made for leaving undeveloped natural areas and corridors to mitigate the adverse environmental impacts of subdivision and to sustain a diversity of native vegetation and wildlife, to protect water resources, agricultural land and scenic viewsheds, and to implement the Town’s policies of protection of its environmental and cultural resources pursuant to the Master Plan and Zoning Law.<sup>28</sup>

Rather than speculate as to whether these endangered and threatened species make this site their home, the Planning Board can obtain a definitive answer with surveys pursuant to US Fish and Wildlife specifications.<sup>29</sup> But this should be performed by experts chosen by the Planning Board, who report not to the applicants, but to the Planning Board. Section 402 of the Town Zoning Code states, “[i]f the . . . Planning Board . . . finds it necessary to retain counsel, planning consultants, engineers or other experts to review a particular project, an escrow deposit may be required from which additional reasonable administrative and review costs may be charged back to the applicant.”

While allowing a property owner to create several additional home sites may not seem like a big deal, the decisions by the Planning Board have significant ramifications well beyond the address of 515 Woodstock Road. The Town’s Comprehensive Plan and its laws highlight the importance of your actions.

Respectfully submitted,  
Mancuso Esq PLLC

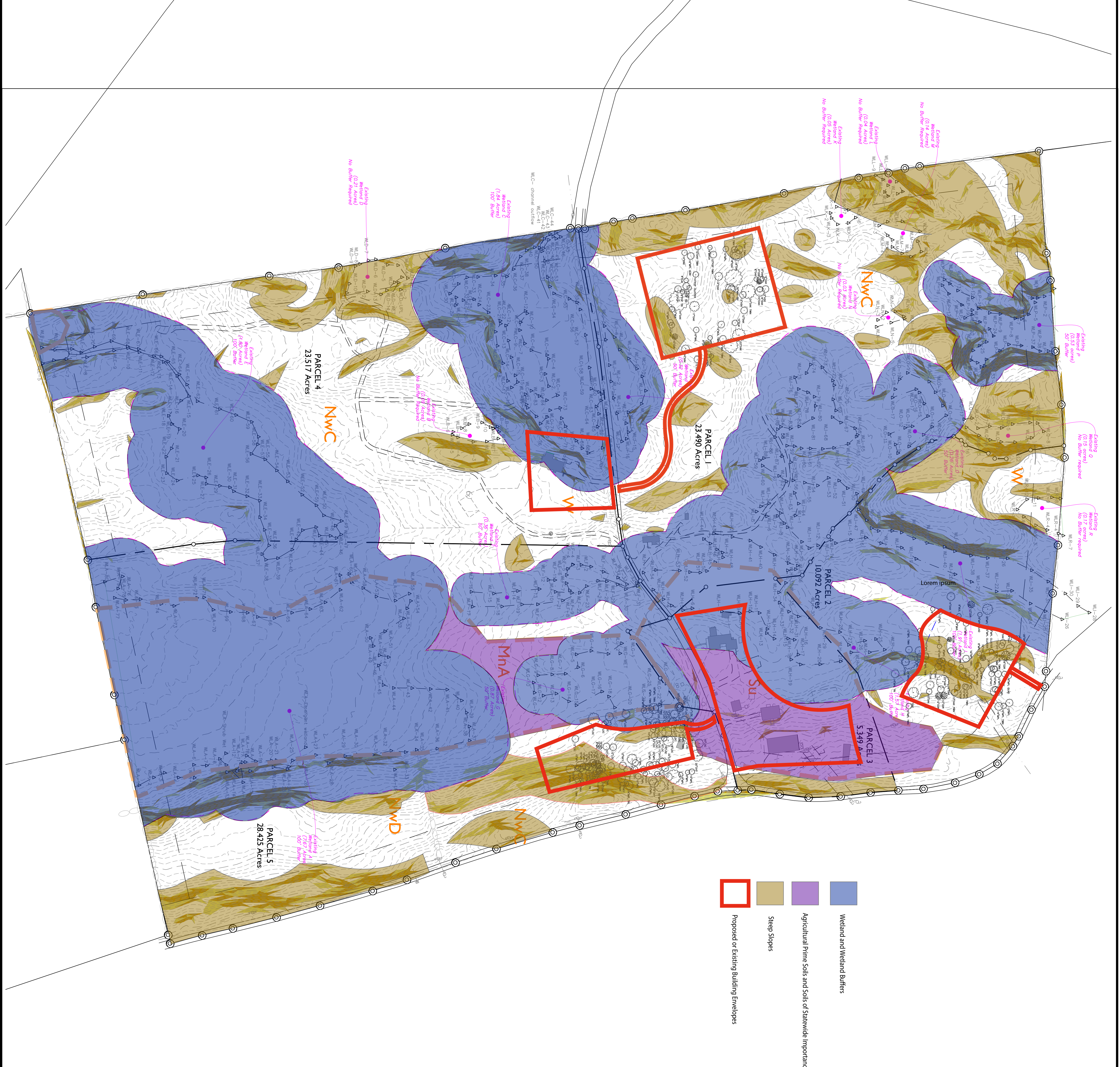
Susan Mancuso

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<sup>27</sup> Washington Comprehensive Plan, p.45.

<sup>28</sup> Town of Washington Land Subdivision Regulations § 11(f).

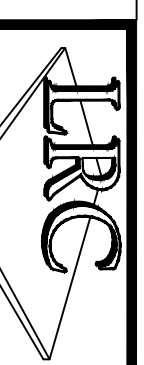
<sup>29</sup> See, <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>; <https://www.fws.gov/media/guidelines-bog-turtle-surveys-phase-1-and-2-surveys>.



- Wetland and Wetland Buffers
- Agricultural Prime Soils and Soils of Statewide Importance
- Steep Slopes
- Proposed or Existing Building Envelopes

**CONSTRAINTS LEGEND**

- PROPERTY LINE
- WETLAND BUFFER (VARIES LOCAL JURISDICTION)
- FARMLAND SOIL BOUNDARY
- FARMLAND SOILS OVERLAY AREA
- WETLAND FLAG#
- WETLAND FLAGGING
- EXISTING WETLANDS
- FARMLAND SOILS OVERLAY AREA
- 20% STEP SLOPES
- 20% STEP SLOPES
- 25% STEP SLOPES



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515 WOODSTOCK ROAD  
 TOWN OF WASHINGTON  
 DUTCHESS COUNTY, NEW YORK

**CONSTRAINTS MAP**  
 PROPOSED SUBDIVISION

#	Date	Description

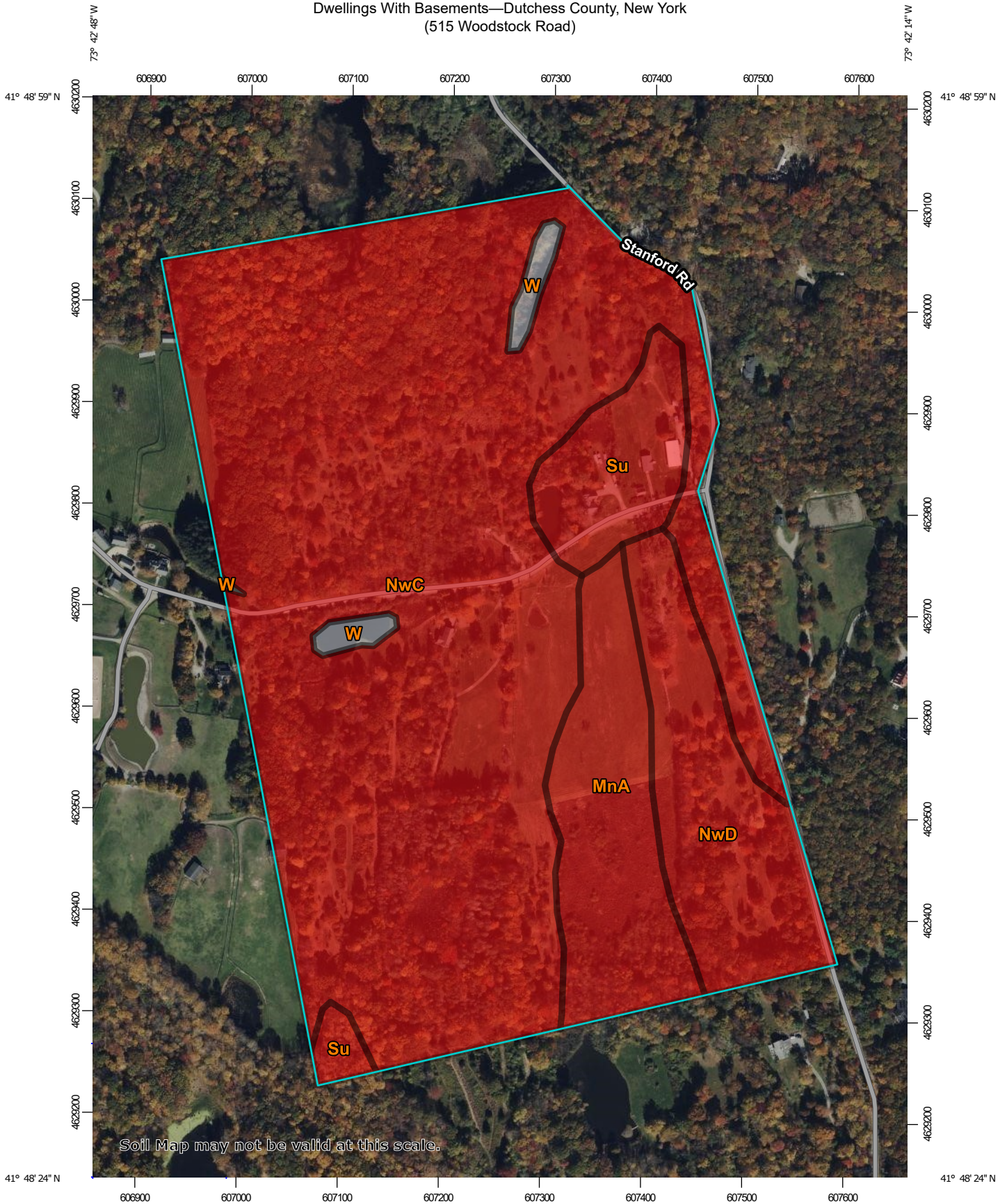
Designer/Client: SMC  
 Project No: 2024-07-23  
 Date: 7-23-2024

Sheet No: CS-1  
 Scale: 1"=300'

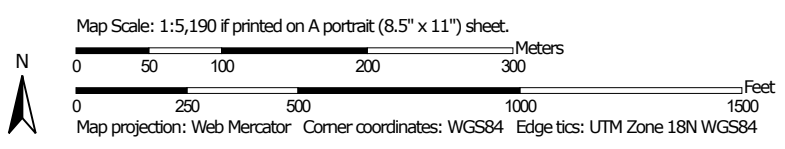


GRAPHIC SCALE  
 SCALE IN FEET  
 100 50 0 50 100

Dwellings With Basements—Dutchess County, New York  
(515 Woodstock Road)




Soil Map may not be valid at this scale.




## MAP LEGEND

### Area of Interest (AOI)





 Area of Interest (AOI)

### Background





 Aerial Photography

### Soils





#### Soil Rating Polygons

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available


#### Soil Rating Lines

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available






#### Soil Rating Points

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

### Water Features

 Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Dutchess County, New York  
Survey Area Data: Version 20, Sep 5, 2023

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

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 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.

## Dwellings With Basements

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
MnA	Massena silt loam, 0 to 3 percent slopes	Very limited	Massena (80%)	Depth to saturated zone (1.00)	10.3	10.2%
NwC	Nassau-Cardigan complex, rolling, very rocky	Very limited	Nassau (45%)	Depth to hard bedrock (1.00)	71.5	71.3%
				Slope (0.16)		
			Cardigan (35%)	Depth to hard bedrock (1.00)		
				Slope (0.16)		
			Rock outcrop (5%)	Depth to hard bedrock (1.00)		
				Slope (0.16)		
NwD	Nassau-Cardigan complex, hilly, very rocky	Very limited	Nassau (45%)	Slope (1.00)	11.0	10.9%
				Depth to hard bedrock (1.00)		
			Cardigan (30%)	Slope (1.00)		
				Depth to hard bedrock (1.00)		
			Rock outcrop (5%)	Slope (1.00)		
				Depth to hard bedrock (1.00)		
Su	Sun silt loam	Very limited	Sun (80%)	Ponding (1.00)	6.3	6.3%
				Depth to saturated zone (1.00)		
W	Water	Not rated	Water (100%)		1.2	1.2%
<b>Totals for Area of Interest</b>					<b>100.4</b>	<b>100.0%</b>

Rating	Acres in AOI	Percent of AOI
Very limited	99.1	98.8%
Null or Not Rated	1.2	1.2%
<b>Totals for Area of Interest</b>	<b>100.4</b>	<b>100.0%</b>

## Description

### ENG - Engineering

Dwellings are single-family houses of three stories or less. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet.

The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification of the soil. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

## Rating Options

### *Aggregation Method: Dominant Condition*

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

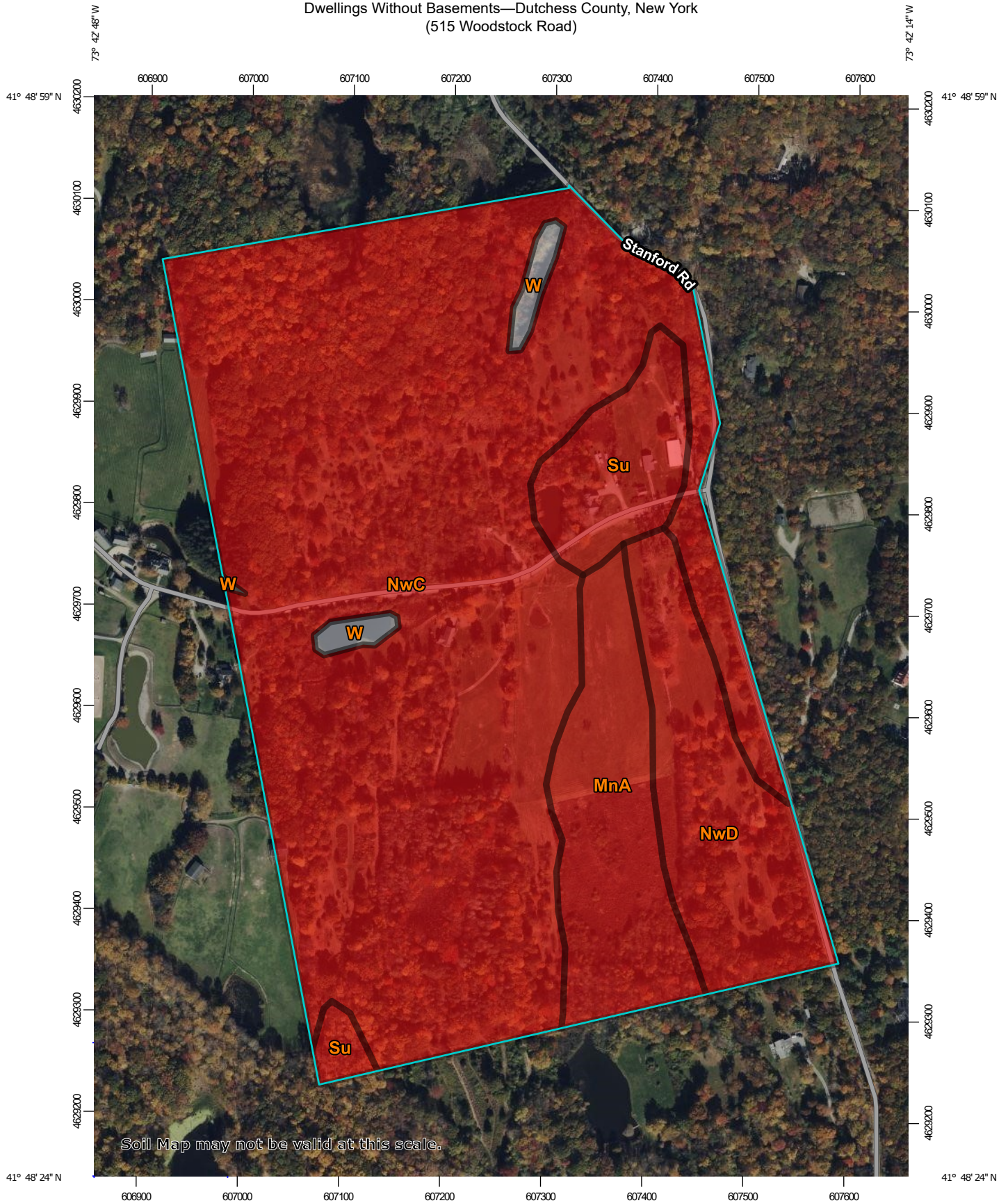
### *Component Percent Cutoff: None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

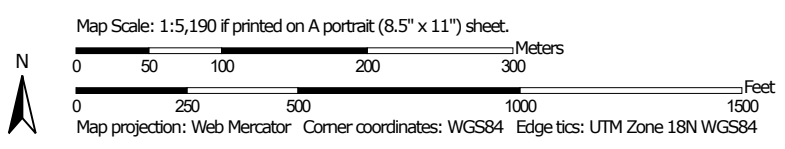
### *Tie-break Rule: Higher*

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Dwellings Without Basements—Dutchess County, New York  
(515 Woodstock Road)




Soil Map may not be valid at this scale.






## MAP LEGEND

### Area of Interest (AOI)





 Area of Interest (AOI)

### Background





 Aerial Photography

### Soils





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Survey Area Data: Version 20, Sep 5, 2023

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Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

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## Dwellings Without Basements

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
MnA	Massena silt loam, 0 to 3 percent slopes	Very limited	Massena (80%)	Depth to saturated zone (1.00)	10.3	10.2%
NwC	Nassau-Cardigan complex, rolling, very rocky	Very limited	Nassau (45%)	Depth to hard bedrock (1.00)	71.5	71.3%
				Slope (0.16)		
			Rock outcrop (5%)	Depth to hard bedrock (1.00)		
				Slope (0.16)		
NwD	Nassau-Cardigan complex, hilly, very rocky	Very limited	Nassau (45%)	Slope (1.00)	11.0	10.9%
				Depth to hard bedrock (1.00)		
			Cardigan (30%)	Slope (1.00)		
				Depth to hard bedrock (0.46)		
			Rock outcrop (5%)	Slope (1.00)		
				Depth to hard bedrock (1.00)		
Su	Sun silt loam	Very limited	Sun (80%)	Ponding (1.00)	6.3	6.3%
				Depth to saturated zone (1.00)		
W	Water	Not rated	Water (100%)		1.2	1.2%
<b>Totals for Area of Interest</b>					<b>100.4</b>	<b>100.0%</b>

Rating	Acres in AOI	Percent of AOI
Very limited	99.1	98.8%
Null or Not Rated	1.2	1.2%
<b>Totals for Area of Interest</b>	<b>100.4</b>	<b>100.0%</b>

## Description

### ENG - Engineering

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper.

The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification of the soil. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to

validate these interpretations and to confirm the identity of the soil on a given site.

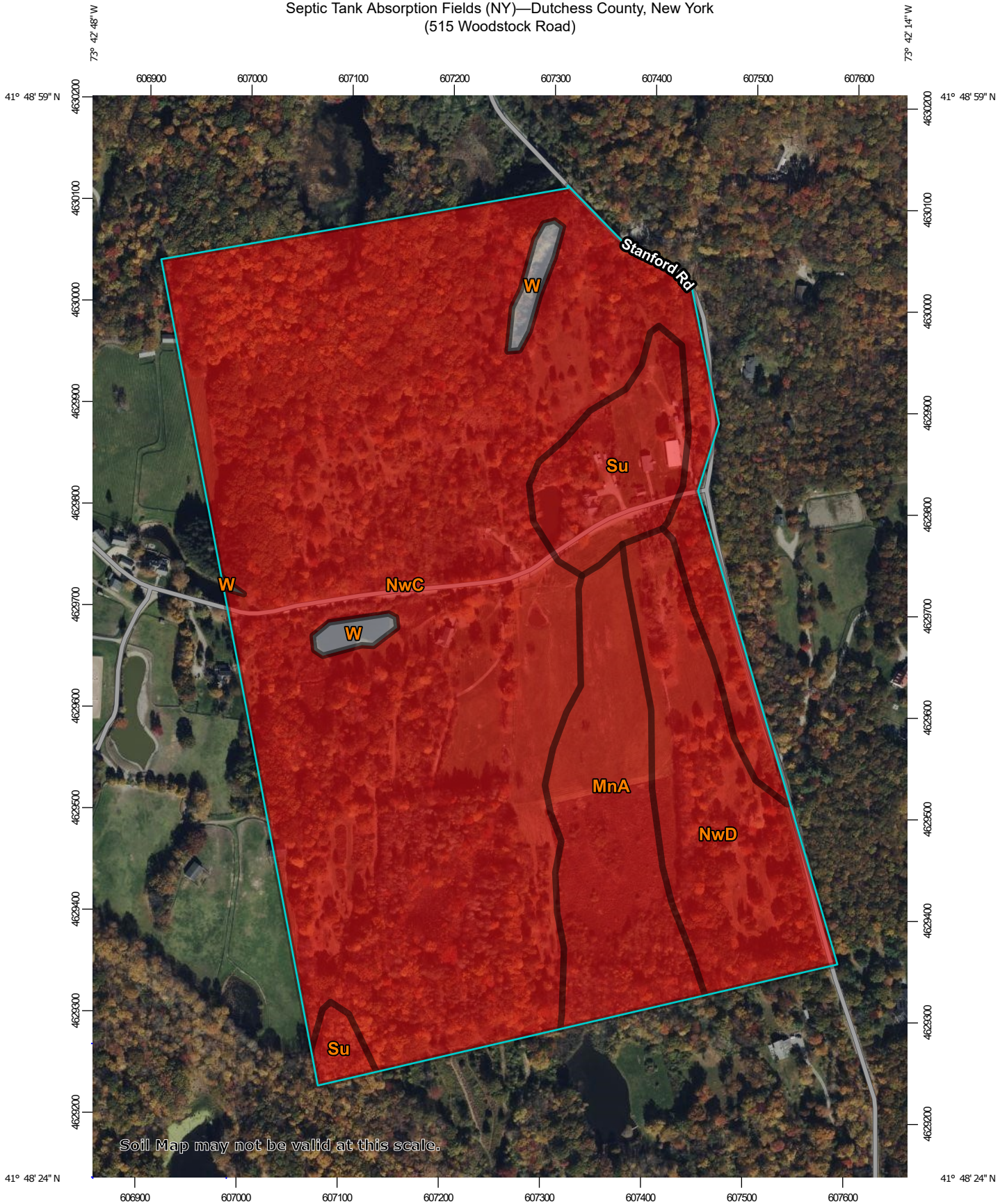
## Rating Options

*Aggregation Method:* Dominant Condition

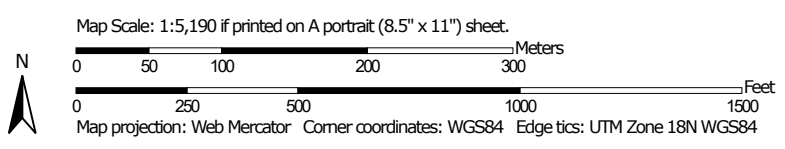
*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

Septic Tank Absorption Fields (NY)—Dutchess County, New York  
(515 Woodstock Road)




Soil Map may not be valid at this scale.




## MAP LEGEND

### Area of Interest (AOI)





-  Area of Interest (AOI)

### Background





-  Aerial Photography

### Soils





#### Soil Rating Polygons

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available


#### Soil Rating Lines

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available






#### Soil Rating Points

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

### Water Features

-  Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Dutchess County, New York  
Survey Area Data: Version 20, Sep 5, 2023

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

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

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## Septic Tank Absorption Fields (NY)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
MnA	Massena silt loam, 0 to 3 percent slopes	Very limited	Massena (80%)	Depth to saturated zone (1.00)	10.3	10.2%
				Restricted permeability (0.99)		
NwC	Nassau-Cardigan complex, rolling, very rocky	Very limited	Nassau (45%)	Depth to bedrock (1.00)	71.5	71.3%
				Restricted permeability (0.31)		
				Slope (0.20)		
NwD	Nassau-Cardigan complex, hilly, very rocky	Very limited	Nassau (45%)	Depth to bedrock (1.00)	11.0	10.9%
				Slope (1.00)		
				Restricted permeability (0.31)		
			Cardigan (30%)	Slope (1.00)		
				Depth to bedrock (0.75)		
				Restricted permeability (0.31)		
Su	Sun silt loam	Very limited	Sun (80%)	Depth to saturated zone (1.00)	6.3	6.3%
				Restricted permeability (1.00)		
				Ponding (1.00)		
W	Water	Not rated	Water (100%)		1.2	1.2%
<b>Totals for Area of Interest</b>					<b>100.4</b>	<b>100.0%</b>

Rating	Acres in AOI	Percent of AOI
Very limited	99.1	98.8%
Null or Not Rated	1.2	1.2%
<b>Totals for Area of Interest</b>	<b>100.4</b>	<b>100.0%</b>

## Description

Septic tank absorption fields are subsurface systems of perforated pipe or similar devices that distribute effluent from a septic tank into the soil. New York State Department of Health regulations allow installation of septic system absorption fields of varying designs, depending upon the depth of suitable soil material above any limitation in the natural soil at a site (New York State Department of Health, 1990). Where necessary, imported fill material may be used to elevate absorption trenches to at least the minimum distance of 24 inches above limiting soil horizons. The depth ranges of suitable material and corresponding types of absorption systems allowed are as follows:

Less than 12 inches-no system allowed

12 to 24 inches-alternative raised trench

24 to 48 inches-conventional shallow trench

More than 48 inches-conventional system

The ratings in this interpretation are based on evaluation of the soil between depths of 12 and 48 inches. In addition, the bottom layer of the soil is evaluated for risk of seepage. This interpretation does not evaluate bedrock below the soil. The soil properties and site features considered are those that affect absorption of the effluent, construction and maintenance of the system, and public health.

The soil properties and qualities that affect the absorption and effective treatment of wastewater effluent are saturated hydraulic conductivity (Ksat), depth to a seasonal high water table, depth to bedrock, depth to dense material, and susceptibility to flooding. Stones and boulders and a shallow depth to bedrock or dense material interfere with installation. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas. In addition, the hazards of erosion and sedimentation increase as slope increases.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 2 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, ground water may be contaminated.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.



Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

The information in this interpretation is based on criteria developed specifically for soils in New York. The information is not site specific and does not eliminate the need for onsite investigation of the soils.

Reference:

New York State Department of Health. 1990. Appendix 75-A of Part 75, Section 201(1)(1) of New York Public Health Law. Nassau and Suffolk Counties have a waiver from this portion of New York State Department of Health regulations.

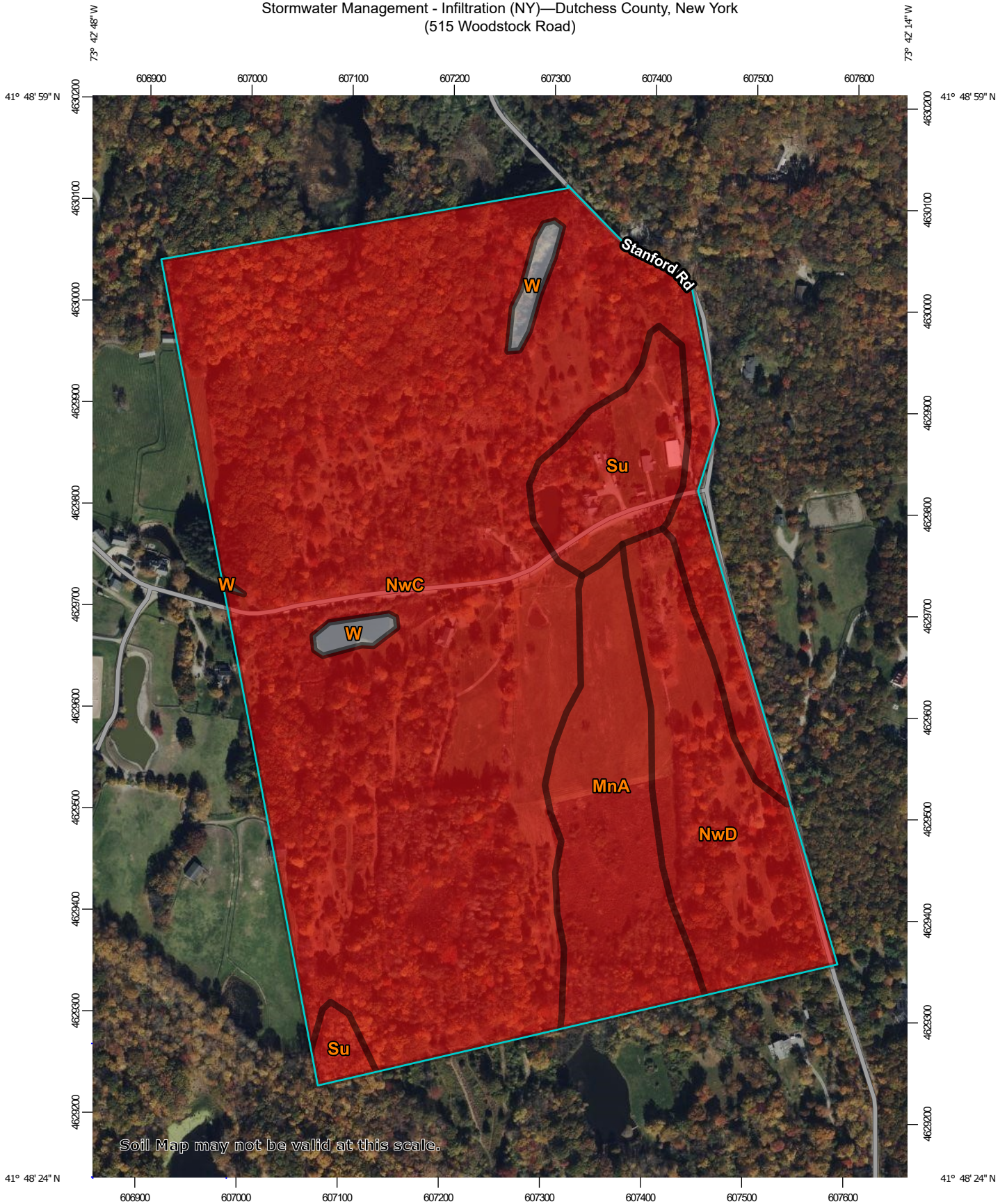
## Rating Options

*Aggregation Method:* Dominant Condition

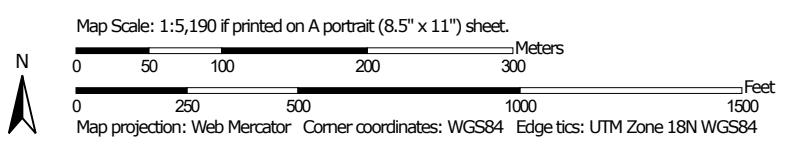
*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

Stormwater Management - Infiltration (NY)—Dutchess County, New York  
(515 Woodstock Road)




Soil Map may not be valid at this scale.




## MAP LEGEND

### Area of Interest (AOI)





 Area of Interest (AOI)

### Background





 Aerial Photography

### Soils





#### Soil Rating Polygons

-  Most limited
-  Somewhat limited
-  Least limited
-  Not rated or not available


#### Soil Rating Lines

-  Most limited
-  Somewhat limited
-  Least limited
-  Not rated or not available






#### Soil Rating Points

-  Most limited
-  Somewhat limited
-  Least limited
-  Not rated or not available

### Water Features

 Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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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.

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## Stormwater Management - Infiltration (NY)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
MnA	Massena silt loam, 0 to 3 percent slopes	Most limited	Massena (80%)	Depth to saturation (1.00)	10.3	10.2%
				Low permeability (0.50)		
NwC	Nassau-Cardigan complex, rolling, very rocky	Most limited	Nassau (45%)	Depth to bedrock (1.00)	71.5	71.3%
				Slope (0.50)		
			Cardigan (35%)	Depth to bedrock (1.00)		
				Slope (0.50)		
NwD	Nassau-Cardigan complex, hilly, very rocky	Most limited	Nassau (45%)	Depth to bedrock (1.00)	11.0	10.9%
				Slope (1.00)		
			Cardigan (30%)	Depth to bedrock (1.00)		
				Slope (1.00)		
Su	Sun silt loam	Most limited	Sun (80%)	Low permeability (1.00)	6.3	6.3%
				Depth to saturation (1.00)		
				Excessive fines (0.50)		
W	Water	Not rated	Water (100%)		1.2	1.2%
<b>Totals for Area of Interest</b>					<b>100.4</b>	<b>100.0%</b>

Rating	Acres in AOI	Percent of AOI
Most limited	99.1	98.8%
Null or Not Rated	1.2	1.2%
<b>Totals for Area of Interest</b>	<b>100.4</b>	<b>100.0%</b>

## Description

Proper management of stormwater runoff from construction sites and developed areas is an issue of growing importance in New York State. During construction, exposed soil is subject to a greater risk of erosion, resulting in a greater potential for sedimentation in waterways. Stormwater runoff increases on the rooftops of buildings, paved parking lots, and other impervious surfaces, and thus increases the potential for flooding and discharge of polluted runoff into open water. Management of stormwater runoff can prevent or reduce the availability, release, or transport of substances that can degrade surface and ground waters. Guidelines and design criteria for stormwater management practices have been established by the New York State Department of Environmental Conservation (2008).

This interpretation is designed to evaluate the limitations of soils for stormwater management practices. The purpose of the interpretation is to help decision makers use soil survey information in the selection and implementation of the stormwater management practices best suited to a particular location. The information in the interpretations is intended for planning purposes and does not eliminate the need for on-site investigation of the soil.

Rating class terms indicate the extent to which the soils are limited by the soil features that influence the design, construction, and performance of stormwater management practices. "Least limited" indicates that the soil has features that are very favorable for this practice. Good performance and low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the practice. The limitations can be overcome or minimized by special planning, design, or construction. Fair performance and moderate maintenance can be expected. "Most limited" indicates that the soil has one or more features that are unfavorable for the practice. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive construction procedures. Poor performance and high maintenance can be expected.

The rating class is based on the maximum value of the rating indices generated for each soil feature considered. Where the rating value is:

equal to 0.0, the rating class is "least limited."

greater than 0 and less than 1.0, the rating class is "somewhat limited."

equal to 1.0, the rating class is "most limited."

Design criteria in the "New York State Stormwater Management Design Manual" (New York State Department of Environmental Conservation, 2008) were used to guide the selection of potentially limiting soil properties. Additional limiting features incorporated into the interpretations are based on soil function for the specific practice.

Infiltration Practices

This interpretation evaluates the limitations of soils for stormwater management infiltration practices. Infiltration practices collect stormwater runoff in basins (or trenches) for storage prior to filtration through undisturbed soil in the basin (or trench) floor and sides. Deep, well drained, and permeable soils are required for implementing infiltration practices. Following is a synopsis of the soil features considered in this interpretation.

**Excessive permeability:** Excessive permeability in one or more layers may allow stormwater to move rapidly through the soil without sufficient filtering, resulting in a potential for groundwater contamination. Additional pretreatment or soil amendments may be required as part of an infiltration practice. The interpretation evaluates the range (low to high) of permeability values for the most transmissive layer in the soil.

**Low permeability:** Low permeability restricts movement of water through the soil, impeding the infiltration function. The interpretation evaluates the range (low to high) of permeability values for the least transmissive layer in the soil.

**Slope gradient:** Excessive slope limits the functionality of an infiltration practice. The representative slope gradient percent for the soil component is the property evaluated.

**Depth to bedrock:** Limited depth to bedrock impedes excavation and restricts infiltration. The minimum depth to bedrock is the property evaluated.

**Depth to manufactured layer:** In urban areas, some anthropogenic (human-altered) soils have a restrictive layer, such as pavement, below the surface. Limited depth to this feature impedes excavation and restricts infiltration. The minimum depth to a manufactured layer is the property evaluated.

**Depth to saturation:** A seasonal high water table in the upper part of the soil limits the storage capacity of an infiltration practice. The interpretation evaluates the minimum depth to a zone of saturation.

**Excessive fines:** Soils with a high content of silt and clay may become plugged with sediment from stormwater, resulting in restricted infiltration. The interpretation evaluates the weighted average of the percent clay and percent silt, for depths greater than 36 inches.

In addition to soil characteristics, other attributes of the site and the surrounding area are important factors in planning and implementing stormwater management practices. For example, proximity and slope direction from the installation practice to a drinking water well are important considerations when sites for infiltration practices are selected.

The components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed in the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as the one listed for the map unit. The percent composition of these components is described. As a result, the percentage of the rating class in the map unit is indicated.

Other components with different ratings may occur in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the "Stormwater Management (NY)" report from the Soil Reports tab in Web Soil Survey.

References:

New York State Department of Environmental Conservation. April 2008. New York State Stormwater Management Design Manual.

New York State Department of Environmental Conservation. June 2000. Urban/Stormwater Runoff Management Practices Catalogue for Nonpoint Source Pollution Prevention in New York State.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher