Soil Resources

The Town of Cornwall encompasses approximately 46 square miles of sloping to steep land in central Litchfield County. Cornwall, by Connecticut standards, is quite mountainous and is underlain by primarily by layered gneiss and schist bedrock. The Town has numerous watercourses, including the Housatonic River, Hollenbeck River, Furnace Brook, Reed Brook, Valley Brook and Tanner Brook. The Town is rural in nature, sparsely populated and is dominated by forestland and limited residential development corridors.

Soils Discussion

1. Overall Soils

The soils of Cornwall primarily developed from glacial till deposits (Western Highland) with two major soil associations (catenas): (ablation till) Hollis, Chatfield, Charlton, Canton, Sutton, and Leicester mapping units and (compact till) Paxton, Montauk, Woodbridge, Ridgebury and Whitman mapping units. A small percentage of the glacial till soils are derived from mixed limestone and crystalline rocks (parent material) and include the following soil associations: Stockbridge, Farmington, Nellis, Georgia, Amenia, Mudgepond and Alden mapping units.

Within the valleys and terraces along the larger watercourses, such as the Housatonic River, glaciofluvial (stratified sand and gravel) and alluvial (stratified sand and silt) soils have developed and include the following associations: (glaciofluvial) Hinckley, Merrimac, Sudbury, Walpole, and Scarboro mapping units; Enfield, Haven, Ninigret, Tisbury and Raypol mapping units; and Groton, Copake, Hero, Fredon and Halsey mapping units; (alluvial) Occum, Hadley, Pootatuck, Rippowam, Limerick and Saco. I have included a soil map and list for the section of Cornwall in the vicinity of the confluence of the Housatonic River and Furnace Brook.

2. Soils/Development

The main landscape features in Cornwall affecting soils, and development thereof, include slope (steepness) on the highlands and the occurrence of wetlands and floodplains in the watercourse valleys and terraces.

Slope (steepness)

Approximately 40% of the Town has soils with greater than 15% slope (see map entitled "Steep Slope. Cornwall, Connecticut", dated May 31, 2007 and prepared by CTDEP). These soils occur on ridgelines and mountains, such as: Mine Mountain, Coltsfoot Mountain, Green Mountain, Whitcomb Hill, White Rock, Mohawk Mountain and Red Mountain. Development on any of these steep sloped soils would be extremely difficult and problematic for erosion and sediment control. Due to textural and structural characteristics some soils have severe erosion potential even at 8% - 15% slope, including Armenia, Enfield, Georgia, Haven, Merrimac, Nellis and

Stockbridge series. Soils with severe erosion potential at 15% - 45% slope include: Canton, Charlton, Chatfield, Groton, Hinckley, Hollis, Montauk and Paxton series. It is critical that erosion and sedimentation controls be properly designed, implemented, monitored and enforced for development on these aforementioned steep soils.

Inland Wetland (including Alluvial/Floodplain) Soils

Wetland soils have developed uniformly across the Town within drainageways, valleys and lowlands (see map entitled Wetland Soils, Cornwall, Connecticut," dated May 31, 2007 and prepared by CTDEP). The list of soil series/mapping units designated at "Inland Wetlands" is attached and detailed in the following document: http://www.ct.nrcs.usda.gov/Soil Pages/inland wetland_soils.html

Large wetland complexes, located at higher elevations, serve as headwaters to watercourses such as Heffers Brook, Reed Brook, Bonney Brook and Preston Brook. Lowland and floodplain wetland complexes are associated with watercourses, including Birdseye Brook, Furnace Brook, Valley Brook, Tanner Brook and the Hollenbeck River. Development of these soils are problematic since they are regulated by the Town of Cornwall and US Army Corps of Engineers permitting programs and are generally unsuitable for construction activities due to flooding, excessive fines and organic matter, high water tables, poor drainage/permeability and overall poor soil stability. Further, inland wetland soils support ecosystems which provide a myriad of beneficial function and values for the Town, including groundwater recharge/discharge, floodflow alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal/retention/transformation, production export, sediment/shoreline stabilization, wildlife habitat, recreation, education/scientific value, uniqueness/heritage and visual quality/aesthetics. Consequently, the Town of Cornwall should continue its protection and preservation of its inland wetland soils.

Farmland Soils

The list of soil series/mapping units that have been designated in Connecticut as "Prime Farmland" and "Farmland of Statewide Importance" is attached and detailed in the following document: ftp://ftp-fc.sc.egov.usda.gov/CT/soils/20Q7_prime-important.pdf. These farmland soils in Cornwall are shown on the map entitled "Farmland Soils, Cornwall, Connecticut", dated May 31, 2007 and prepared by CTDEP.

The same characteristics that make these farmland soils desirable for agriculture uses (gentle slopes, moderate drainage and moisture capacity, permeability, fertility, non-erodible, etc...) are what make these soils prime areas for future development. Adding to their suitability for development, most of these soils are usually open field or lightly forested, accessible and large tracts of land (farms) with one owner. These farmland soils and any adjacent suitable (non-

wetland and gentle sloped soils) soils would be at a high risk. Consequently, the Town should prioritize protection of these soils in any planning efforts.

Conclusions

- The main limiting factors for development in Cornwall is steepness and inland wetlands.
- Development on soils with 15% slopes or greater should be discouraged due to significant potential for erosion and resultant sedimentation of water resources.
- Development within or immediately adjacent to Inland Wetland soils should be avoided.
- The protection and preservation of Farmland Soils should be a Town priority.
- Development pressures will be greatest on the non-wetland soils with gentle slopes (0% - 15%), which include the aforementioned Farmland Soils.

Soils of Cornwall, CT

Cornwall's Dominant Soil Types (covering 49% of the town)

- 3 - Ridgebury, Leicester and Whitman soils, extremely stony (5% of Cornwall)
- 62C - Canton and Charlton soils, 3 to 15 percent slopes, extremely stony (8% of Cornwall)
- 62D - Canton and Charlton soils, 15 to 35 percent slopes, extremely stony (13% of Cornwall)
- 73C - Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky (6% of Cornwall)
- 73E - Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky (8% of Cornwall)
- 75E - Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes (9% of Cornwall)

Class 1 Soils

- 29A -Agawam fine sandy loam, 0 to 3 percent slopes, 17.4 acres
- 31A -Copake fine sandy loam, 0 to 3 percent slopes, 24.4 acres
- 32A -Haven and Enfield soils, 0 to 3 percent slopes, 59.1 acres
- 34A -Merrimac sandy loam, 0 to 3 percent slopes, 65 acres
- 101 -Occum fine sandy loam, 20.3 acres
- 105 -Hadley silt loam, 11.8 acres
- 428A -Ashfield fine sandy loam, 0 to 3 percent slopes, 2.6 acres

Class 2 - Wetness Limitation

- 21A -Ninigret and Tisbury, 0 to 5 percent slopes, 308.7 acres
- 22A -Hero gravelly loam, 0 to 3 percent slopes,11.4 acres
- 22B -Hero gravelly loam, 3 to 8 percent slopes, 8.9 acres
- 45A -Woodbridge fine sandy loam, 0 to 3 percent slopes, 5.6 acres
- 50B -Sutton fine sandy loam, 3 to 8 percent slopes, 27.7 acres
- 420B -Schroon fine sandy loam, 3 to 8 percent slopes, 2.6 acres
- 102 -Pootatuck fine sandy loam, 45.4 acres
- 106 -Winooski silt loam, 5.6 acres

Class 2 - Shallow, Drought, or Stony Limitation

- 36A Windsor loamy sand, 0 to 3 percent slopes, 19.6 acres
- 36B Windsor loamy sand, 3 to 8 percent slopes, 14.4 acres
- 100 Suncook loamy fine sand, 43.6 acres
- 424B Shelburne fine sandy loam, 3 to 8 percent slopes, 19.1 acres

Class 2 - Erosion Limitation

- 29B Agawam fine sandy loam, 3 to 8 percent slopes, 63.3
- 30B Branford silt loam, 3 to 8 percent slopes, 1.1 acres
- 31B Copake fine sandy loam, 3 to 8 percent slopes, 48.7 acres
- 32B Haven and Enfield soils, 3 to 8 percent slopes, 139 acres
- 34 B Merrimac sandy loam, 3 to 8 percent slopes, 489.4 acres
- 45B Woodbridge fine sandy loam, 3 to 8 percent slopes, 174.7 acres
- 48B Georgia and Amenia silt loams, 2 to 8 percent slopes, 32.3 acres
- 60B Canton and Charlton soils, 3 to 8 percent slopes, 242.1 acres
- 84B Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, 590 acres
- 90B Stockbridge loam, 3 to 8 percent slopes, 32.7 acres
- 412B Bice fine sandy loam, 3 to 8 percent slopes, 3.2 acres
- 428B Ashfield fine sandy loam, 3 to 8 percent slopes, 0.3 acres

Class 3- Erosion Limitation

- 29C Agawam fine sandy loam, 8 to 15 percent slopes, 22.1 acres
- 31C Copake gravelly loam, 8 to 15 percent slopes, 11.9 acres
- 32C Haven and Enfield soils, 8 to 15 percent slopes, 88.6 acres
- 34C Merrimac sandy loam, 8 to 15 percent slopes, 195.6 acres
- 36C Windsor loamy sand, 8 to 15 percent slopes, 4.5 acres
- 39C Groton gravelly sandy loam, 3 to 15 percent slopes, 27.6 acres
- 45C Woodbridge fine sandy loam, 8 to 15 percent slopes, 40.7 acres
- 48C Georgia and Amenia silt loams, 8 to 15 percent slopes, 2.5 acres
- 57C Gloucester gravelly sandy loam, 8 to 15 percent slopes, 0.8 acres
- 60C Canton and Charlton soils, 8 to 15 percent slopes, 248 acres
- 84C Paxon and Montauk fine sandy loam, 8 to 15 percent slopes, 423.2 acres
- 90C Stockbridge loam, 8 to 15 percent slopes, 61.7 acres
- 306 Udorthents-Urban land complex, 82 acres
- 412C Bice fine sandy loam, 8 to 15 percent slopes, 6.4 acres
- 424C Shelburne fine sandy loam, 8 to 15 percent slopes, 26.3 acres

Class 3 - Shallow, Drought, or Stony Limitation

- 38A Hickley gravelly sandy loam, 0 to 3 percent slopes, 16.8 acres

Class 4- Wetness Limitation

- 4 Leicester fine sandy loam, 19 acres
- 7 Mudgepond silt loam, 29.9 acres
- 12 Raypol silt loam, 246.5 acres
- 13 Walpole sandy loam, 92.2 acres
- 14 Fredon silt loam, 29.7 acres
- 103 Rippowam fine sandy loam,76.6 acres
- 107 Limerick and Lim soils, 51.3 acres
- 503 Rumney fine sandy loam, 0.7 acres

Class 4 - Erosion Limitation

- 38C Hinckley gravelly sandy loam, 3 to 15 percent slopes, 470.9 acres
- 57D Gloucester gravelly sandy loam, 15 to 25 percent slopes, 1.5 acres
- 60D Canton and Charlton soils, 15 to 25 percent slopes, 57.8 acres
- 84D Paxton and Montauk fine sandy loam, 15 to 25 percent slopes,127.8 acres
- 90D Stockbridge loam, 15 to 25 percent slopes,6.1 acres
- 305 Udorthents-Pits complex, gravelly, 16.6 acres
- 308 Udorthents, smoothed, 76.6 acres
- 412D Bice fine sandy loam, 15 to 25 percent slopes, 2.8 acres
- 424D Shelburne fine sandy loam, 15 to 25 percent slopes,6.3 acres

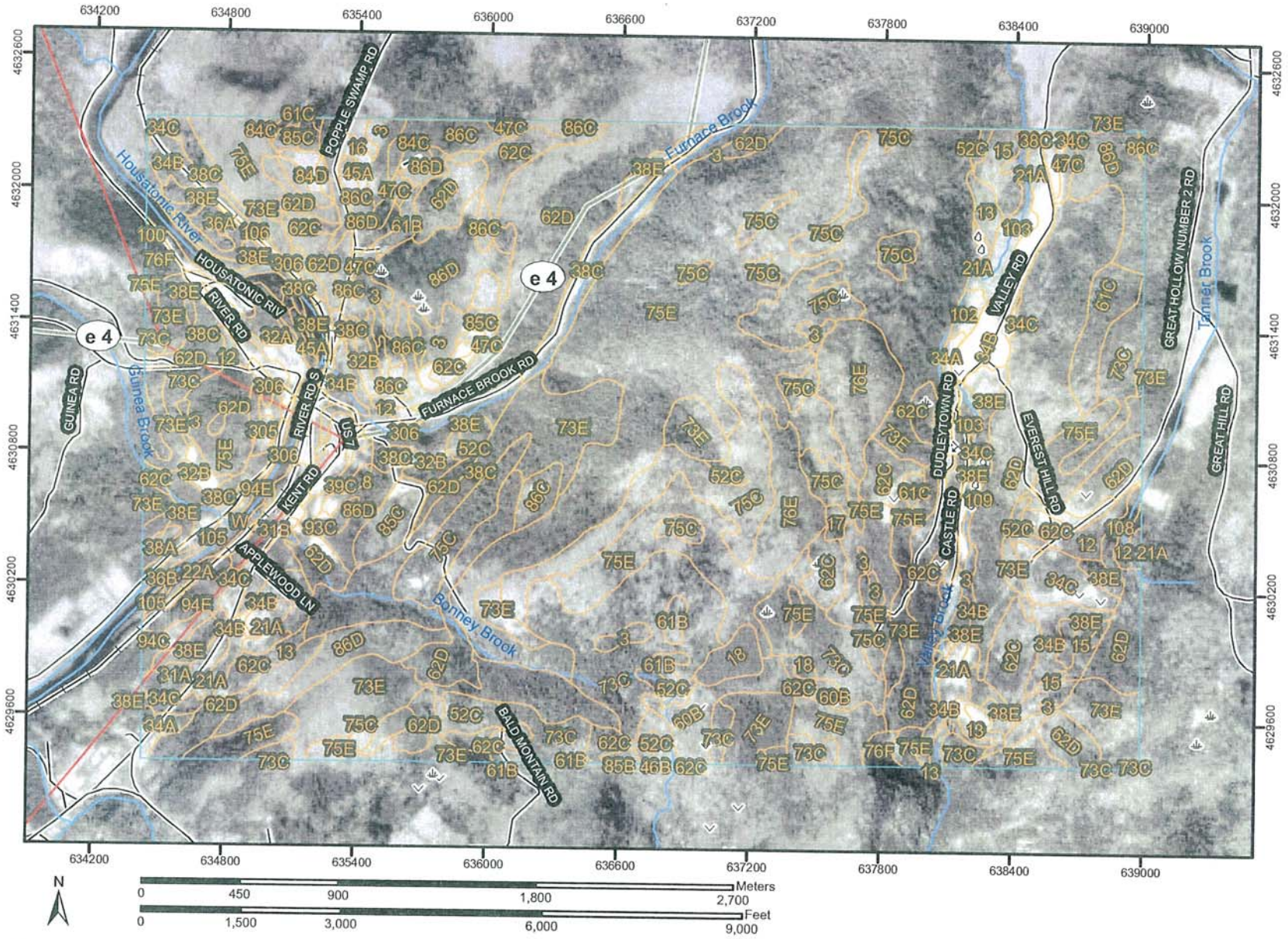
Class 6 – erosion limitation

- 38E Hinckley gravelly sandy loam, 15 to 45 percent slopes, 760.5 acres
- 39E Groton gravelly sandy loam, 15 to 45 percent slopes, 30.3 acres

Class 6 – shallow, droughty or stony limitation

- 46B Woodbridge fine sandy loam, 2 to 8 percent slopes, very stony, 97.2 acres
- 46C Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony,33.6 acres
- 49B Georgia and Amenia silt loams, 3 to 8 percent slopes, very stony, 4.7 acres
- 49C Georgia and Amenia silt loams, 8 to 15 percent slopes, very stony, 75.1 acres
- 51B Sutton fine sandy loam, 2 to 8 percent slopes, very stony, 25.8 acres
- 58B Gloucester gravelly sandy loam, 3 to 8 percent slopes, very stony, 1.6 acres
- 58C Gloucester gravelly sandy loam, 8 to 15 percent slopes, very stony, 7.3 acres
- 61B Canton and Charlton, 3 to 8 percent slopes, very stony, 232.6 acres
- 61C Canton and Charlton, 8 to 15 percent slopes, very stony, 347.8 acres
- 73C Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky, 1775.6 acres
- 75C Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes, 813.4 acres
- 85B Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony, 193.6 acres
- 85C Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony,222.1 acres
- 91B Stockbridge loam, 3 to 8 percent slopes, very stony, 5.2 acres
- 91C Stockbridge loam, 8 to 15 percent slopes, very stony, 34.5 acres
- 93C Nellis fine sandy loam, 3 to 15 percent slopes, very stony, 12.1 acres
- 94C Farmington-Nellis complex, 3 to 15 percent slopes, very rocky, 10.9 acres
- 95C Farmington-Rock outcropcomplex, 3 to 15 percent slopes, 8.7 acres
- 413C Bice-Millsite complex, 3 to 15 percent slopes, very rocky, 333.2 acres
- 417B Bice fine sandy loam, 3 to 8 percent slopes, very stony, 4 acres
- 417C Bice fine sandy loam, 8 to 15 percent slopes, very stony, 190.2 acres
- 417D Bice fine sandy loam, 15 to 25 percent slopes, very stony, 260.1 acres
- 418C Schroon fine sandy loam, 2 to 15 percent slopes, very stony, 50.3 acres
- 425B Shelburne fine sandy loam, 3 to 8 percent slopes, very stony, 15.3 acres
- 425C Shelburne fine sandy loam, 8 to 15 percent slopes, very stony, 214.9 acres
- 427B Ashfield fine sandy loam, 2 to 8 percent slopes, very stony, 8.1 acres
- 427C Ashfield fine sandy loam, 8 to 15 percent slopes, very stony, 112 acres

Soil Map–State of Connecticut



USDA Natural Resources Conservation Service

Web Soil Survey 2.0
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- 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
- Gully
- Short Steep Slope
- Other

Political Features

Municipalities
- Cities
- Urban Areas

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails

Roads
- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N

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

Soil Survey Area: State of Connecticut
Survey Area Data: Version 6, Mar 22, 2007

Date(s) aerial images were photographed: 3/31/1991

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

State of Connecticut (CT600)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, extremely stony	65.7	2.0%
8	Mudgepond and Alden soils, extremely stony	2.3	0.1%
12	Raypol silt loam	18.0	0.5%
13	Walpole sandy loam	15.3	0.5%
14	Fredon silt loam	0.2	0.0%
15	Scarboro muck	20.7	0.6%
16	Halsey silt loam	3.5	0.1%
17	Timakwa and Natchaug soils	3.5	0.1%
18	Catden and Freetown soils	14.3	0.4%
21A	Ninigret and Tisbury soils, 0 to 5 percent slopes	35.6	1.1%
22A	Hero gravelly loam, 0 to 3 percent slopes	3.8	0.1%
31A	Copake fine sandy loam, 0 to 3 percent slopes	6.7	0.2%
31B	Copake fine sandy loam, 3 to 8 percent slopes	15.2	0.5%
32A	Haven and Enfield soils, 0 to 3 percent slopes	18.4	0.6%
32B	Haven and Enfield soils, 3 to 8 percent slopes	14.8	0.4%
34A	Merrimac sandy loam, 0 to 3 percent slopes	10.9	0.3%
34B	Merrimac sandy loam, 3 to 8 percent slopes	105.1	3.2%
34C	Merrimac sandy loam, 8 to 15 percent slopes	47.9	1.4%
36A	Windsor loamy sand, 0 to 3 percent slopes	5.9	0.2%
36B	Windsor loamy sand, 3 to 8 percent slopes	2.6	0.1%
38A	Hinckley gravelly sandy loam, 0 to 3 percent slopes	2.9	0.1%
38C	Hinckley gravelly sandy loam, 3 to 15 percent slopes	77.8	2.4%
38E	Hinckley gravelly sandy loam, 15 to 45 percent slopes	156.8	4.7%
39C	Groton gravelly sandy loam, 3 to 15 percent slopes	6.2	0.2%

State of Connecticut (CT600)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
39E	Groton gravelly sandy loam, 15 to 45 percent slopes	0.8	0.0%
45A	Woodbridge fine sandy loam, 0 to 3 percent slopes	4.3	0.1%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	1.7	0.1%
46B	Woodbridge fine sandy loam, 2 to 8 percent slopes, very stony	1.1	0.0%
47C	Woodbridge fine sandy loam, 2 to 15 percent slopes, extremely stony	19.4	0.6%
49B	Georgia and Amenia silt loams, 3 to 8 percent slopes, very stony	2.5	0.1%
51B	Sutton fine sandy loam, 2 to 8 percent slopes, very stony	1.5	0.0%
52C	Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony	36.9	1.1%
60B	Canton and Charlton soils, 3 to 8 percent slopes	28.4	0.9%
60C	Canton and Charlton soils, 8 to 15 percent slopes	3.4	0.1%
61B	Canton and Charlton soils, 3 to 8 percent slopes, very stony	19.4	0.6%
61C	Canton and Charlton soils, 8 to 15 percent slopes, very stony	32.4	1.0%
62C	Canton and Charlton soils, 3 to 15 percent slopes, extremely stony	120.5	3.6%
62D	Canton and Charlton soils, 15 to 35 percent slopes, extremely stony	473.6	14.3%
73C	Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky	212.5	6.4%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	295.8	9.0%
75C	Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes	213.8	6.5%
75E	Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	701.2	21.2%
76E	Rock outcrop-Hollis complex, 3 to 45 percent slopes	80.2	2.4%
76F	Rock outcrop-Hollis complex, 45 to 60 percent slopes	12.1	0.4%

State of Connecticut (CT600)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	1.5	0.0%
84C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes	7.3	0.2%
84D	Paxton and Montauk fine sandy loams, 15 to 25 percent slopes	7.1	0.2%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	3.5	0.1%
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony	26.7	0.8%
86C	Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony	43.5	1.3%
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	146.2	4.4%
93C	Nellis fine sandy loam, 3 to 15 percent slopes, very stony	2.8	0.1%
94C	Farmington-Nellis complex, 3 to 15 percent slopes, very rocky	7.4	0.2%
94E	Farmington-Nellis complex, 15 to 35 percent slopes, very rocky	12.7	0.4%
95C	Farmington-Rock outcrop complex, 3 to 15 percent slopes	2.1	0.1%
100	Suncook loamy fine sand	3.2	0.1%
102	Pootatuck fine sandy loam	5.5	0.2%
103	Rippowam fine sandy loam	21.6	0.7%
105	Hadley silt loam	10.8	0.3%
106	Winooski silt loam	3.9	0.1%
108	Saco silt loam	5.9	0.2%
109	Fluvaquents-Udifluvents complex, frequently flooded	5.0	0.2%
305	Udorthents-Pits complex, gravelly	3.1	0.1%
306	Udorthents-Urban land complex	34.5	1.0%
W	Water	35.0	1.1%
Totals for Area of Interest (AOI)		3,304.6	100.0%

CORNWALL, CONNECTICUT

STEEP SLOPE

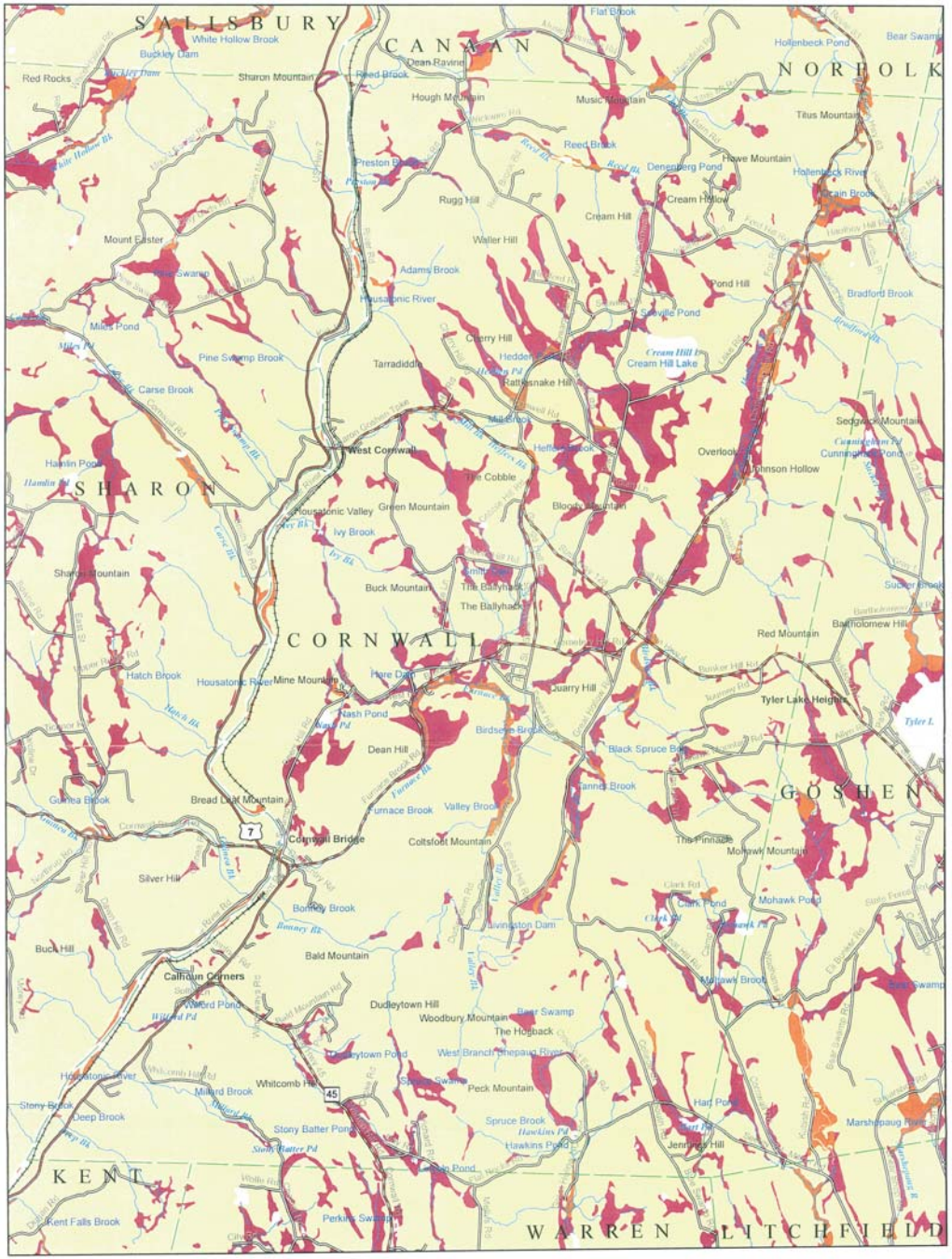
Soils with 15% to 60% Slope

STATE OF CONNECTICUT
DEPARTMENT OF
ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127

Gina McCarthy, Commissioner

0 0.5 1 2 Miles

May 31, 2007



CORNWALL, CONNECTICUT

WETLAND SOILS

Areas Dominated by Alluvial and Floodplain Soils (all drainage classes)

Areas Dominated by Poorly Drained or Very Poorly Drained Soils

Areas Dominated by All Other Soils

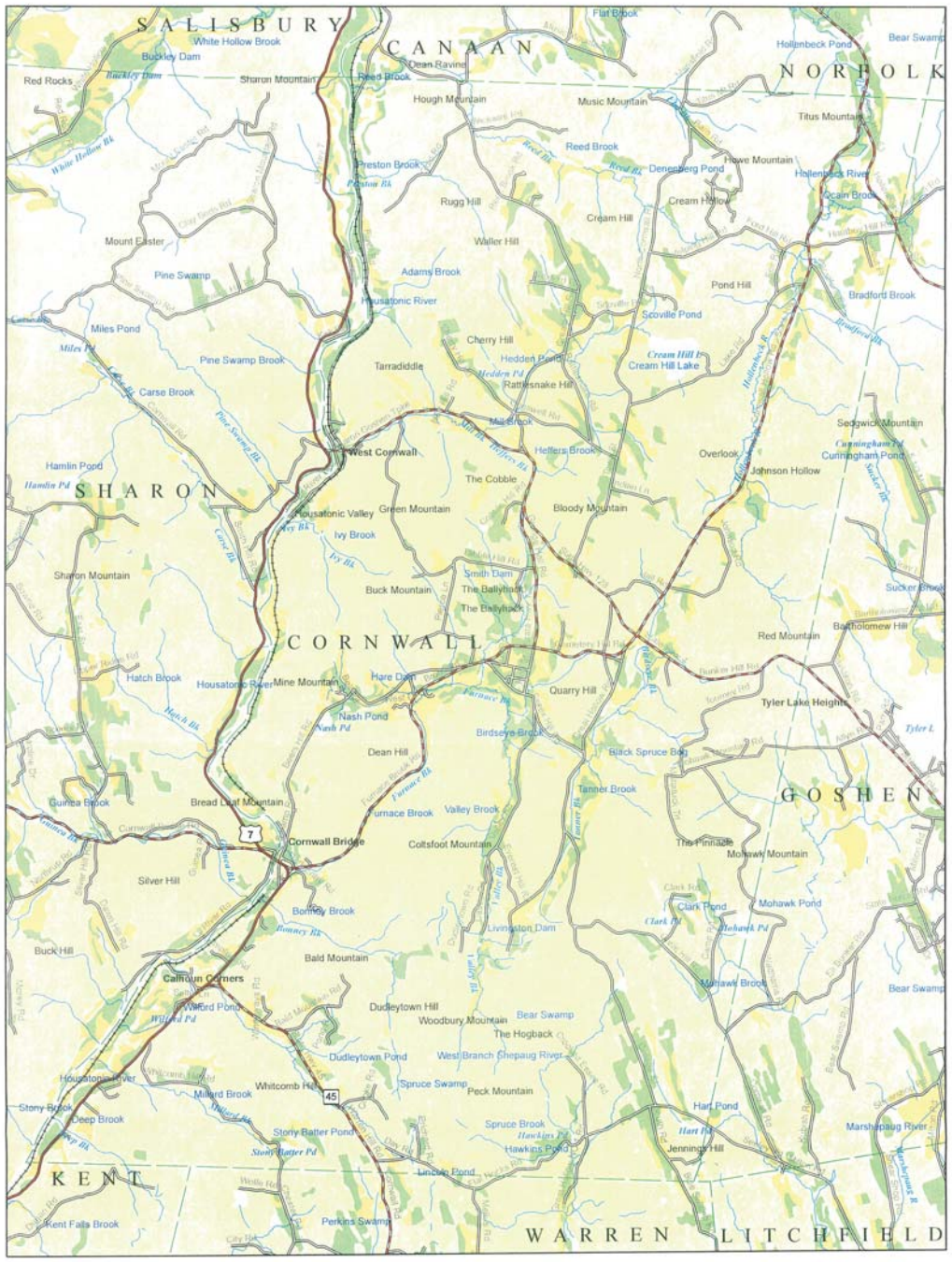
General Location of Soils Influenced by Tidal Action (overprint)

STATE OF CONNECTICUT
DEPARTMENT OF
ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127

Gina McCarthy, Commissioner

0 0.5 1 2 Miles

May 31, 2007



CORNWALL, CONNECTICUT
FARMLAND SOILS

All Areas are Prime Farmland
Farmland of Statewide Importance
Not Prime Farmland

0 0.5 1 2 Miles

STATE OF CONNECTICUT
DEPARTMENT OF
ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127

Gina McCarthy, Commissioner

May 31, 2007