



Vanasse Hangen Brustlin, Inc.

WETLANDS DELINEATION REPORT

Date: January 29, 2007
Project No.: 40999.18
Prepared For: Chuck Regulbuto
Project Manager
Optasite, Inc.
One Research Drive, Suite 200C
Westborough, MA 01581
Site Location: 1294 Pleasant Valley Road
Groton, CT
Site Map: Sketch Map, 10/30/06 – D. Gustafson
Inspection Date: October 30, 2006
Field Conditions: Weather: sunny, low 60's
Snow Depth: 0 inches
General Soil Moisture: moist
Frost Depth: 0 inches

Type of Wetlands Identified and Delineated:

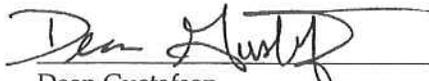
Connecticut Inland Wetlands and Watercourses
Tidal Wetlands
U.S. Army Corps of Engineers

Field Numbering Sequence of Wetlands Boundary: WF1-01 to WF1-09
[as depicted on attached wetland sketch map]

The classification systems of the National Cooperative Soil Survey, the U.S. Department of Agriculture, Natural Resources Conservation Service, County Soil Survey Identification Legend, Connecticut Department of Environmental Protection and United States Army Corps of Engineers New England District were used in this investigation.

All established wetlands boundary lines are subject to change until officially adopted by local, state, or federal regulatory agencies.

The wetlands delineation was conducted by:



Dean Gustafson
Professional Soil Scientist

Enclosures

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Attachments



-
- Wetland Delineation Field Form
 - Soil Map
 - Soil Report
 - Wetland Delineation Sketch Map

Wetland Delineation Field Form

Project Address:	1294 Pleasant Valley Rd. Groton, CT	Project Number:	40999.18
Inspection Date:	10/30/06	Inspector:	DEAN GUSTAFSON
Wetland I.D.:	1		

Field Conditions:	Weather: sunny, low 60's	Snow Depth: none
	General Soil Moisture: moist	Frost Depth: none
Type of Wetland Delineation:	Connecticut <input checked="" type="checkbox"/>	
	ACOE <input checked="" type="checkbox"/>	
	Tidal <input type="checkbox"/>	
Field Numbering Sequence:	WF 1-01 to 1-09	

WETLAND HYDROLOGY:

Nontidal

Regularly Flooded <input type="checkbox"/>	Irregularly Flooded <input type="checkbox"/>	Permanently Flooded <input type="checkbox"/>
Semipermanently Flooded <input type="checkbox"/>	Seasonally Flooded <input type="checkbox"/>	Temporarily Flooded <input type="checkbox"/>
Permanently Saturated <input type="checkbox"/>	Seasonally Saturated - seepage <input checked="" type="checkbox"/>	Seasonally Saturated - perched <input type="checkbox"/>
Comments:		

Tidal

Subtidal <input type="checkbox"/>	Regularly Flooded <input type="checkbox"/>	Irregularly Flooded <input type="checkbox"/>
Seasonally Flooded <input type="checkbox"/>	Temporarily Flooded <input type="checkbox"/>	
Comments: N/A		

WETLAND TYPE:

System

Estuarine <input type="checkbox"/>	Riverine <input type="checkbox"/>	Palustrine <input checked="" type="checkbox"/>
Lacustrine <input type="checkbox"/>	Marine <input type="checkbox"/>	
Comments:		

Class

Emergent Marsh <input type="checkbox"/>	Scrub-shrub <input type="checkbox"/>	Forested <input checked="" type="checkbox"/>
Open Water <input type="checkbox"/>	Disturbed <input type="checkbox"/>	
Comments:		

WATERCOURSE TYPE:

Upper Perennial <input type="checkbox"/>	Lower Perennial <input type="checkbox"/>	Intermittent <input checked="" type="checkbox"/>
Tidal <input type="checkbox"/>		
Comments: interior discontinuous channel		

SPECIAL AQUATIC HABITAT:

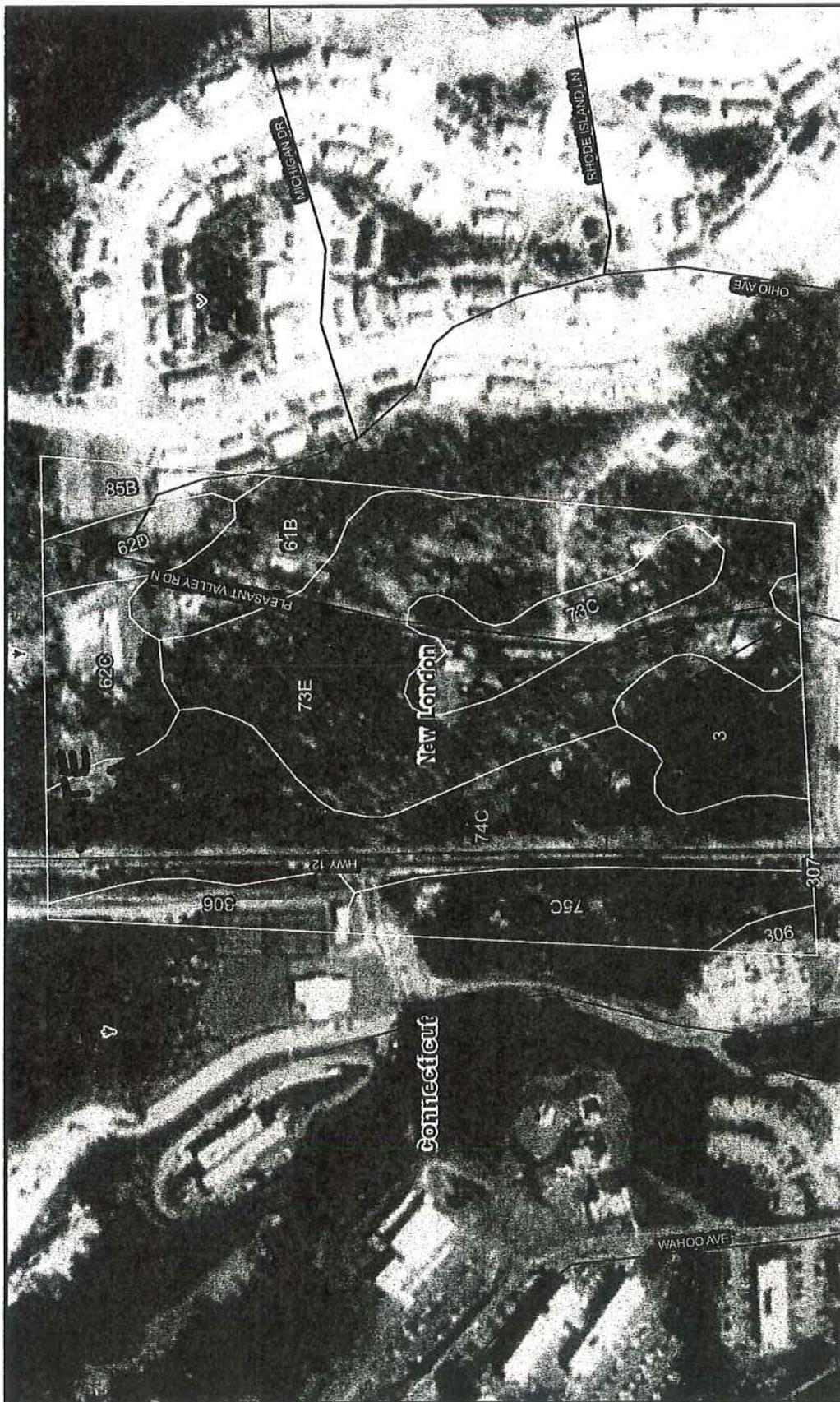
Vernal Pool <input type="checkbox"/>	Other <input type="checkbox"/>	
Comments: N/A		

DOMINANT PLANTS:

red maple	
spicebush	
winterberry	
highbush blueberry	
woolgrass	
Cinnamon fern	
skunk cabbage	

SOIL SURVEY OF STATE OF CONNECTICUT

1294 Pleasant Valley Road North, Groton, CT



SOIL SURVEY OF STATE OF CONNECTICUT

1294 Pleasant Valley Road North, Groton, CT

MAP LEGEND

- Soil Map Units
- Cities
- Detailed Counties
- Detailed States
- Interstate Highways
- Roads
- Rails
- Water
- Hydrography
- Oceans
- Escarpment, bedrock
- Escarpment, non-bedrock
- Gulley
- Levee
- Slope
- Blowout
- Borrow Pit
- Clay Spot
- Depression, closed
- Eroded Spot
- Gravel Pit
- Gravelly Spot
- Gulley
- Lava Flow
- Landfill
- Marsh or Swamp
- Miscellaneous Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Slide or Slip
- Sinkhole
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Perennial Water
- Wet Spot

MAP INFORMATION

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: UTM Zone 18

Soil Survey Area: State of Connecticut
 Spatial Version of Data: 3

Soil Map Compilation Scale: 1:12000

Map comprised of aerial images photographed on these dates:
 4/12/1991

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 Summary

State of Connecticut

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, extremely stony	2.9	6.7
61B	Canton and Charlton soils, 3 to 8 percent slopes, very stony	2.6	6.0
62C	Canton and Charlton soils, 3 to 15 percent slopes, extremely stony	2.5	6.0
62D	Canton and Charlton soils, 15 to 35 percent slopes, extremely stony	1.4	3.3
73C	Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky	2.8	6.5
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	13.3	31.1
74C	Narragansett-Hollis complex, 3 to 15 percent slopes, very rocky	10.2	23.8
75C	Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes	3.8	8.9
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	1.2	2.9
306	Udorthents-Urban land complex	2.1	4.8
307	Urban land	0.0	0.0

Map Unit Description (Brief)

State of Connecticut

[Only those map units that have entries for the selected non-technical description categories are included in this report]

Map Unit: 3 - Ridgebury, Leicester, and Whitman soils, extremely stony

Description Category: SOI

Ridgebury, Leicester And Whitman Soils, Extremely Stony

This map unit is in the New England and Eastern New York Upland, Southern Part Major Land Resource Area. The mean annual precipitation is 37 to 50 inches (940 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 40 percent Ridgebury soils, 35 percent Leicester soils, 15 percent Whitman soils, 10 percent minor components.

Ridgebury soils

This component occurs on upland drainageway and depression landforms. The parent material consists of lodgement till derived from granite, schist, and gneiss. The slope ranges from 0 to 5 percent and the runoff class is very low. The depth to a restrictive feature is 20 to 30 inches to densic material. The drainage class is poorly drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 2.5 inches (low) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 3 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s

Typical Profile:

*0 to 1 inches; slightly decomposed plant material
1 to 5 inches; fine sandy loam
5 to 14 inches; fine sandy loam
14 to 21 inches; fine sandy loam
21 to 60 inches; sandy loam*

Leicester soils

This component occurs on upland drainageway and depression landforms. The parent material consists of melt-out till derived from granite, schist, and gneiss. The slope ranges from 0 to 5 percent and the runoff class is very low. The depth to a restrictive feature is greater than 60 inches. The drainage class is poorly drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 7.4 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 9 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s

Typical Profile:

*0 to 1 inches; moderately decomposed plant material
1 to 7 inches; fine sandy loam
7 to 10 inches; fine sandy loam
10 to 18 inches; fine sandy loam
18 to 24 inches; fine sandy loam
24 to 43 inches; gravelly fine sandy loam
43 to 65 inches; gravelly fine sandy loam*

Whitman soils

This component occurs on upland drainageway and depression landforms. The parent material consists of lodgement till derived from gneiss, schist, and granite. The slope ranges from 0 to 2 percent and the runoff class is very low. The depth to a restrictive feature is 12 to 20 inches to densic material. The drainage class is very poorly drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 1.9 inches (very low) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is occasional. The minimum depth to a seasonal water table, when present, is about 0 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s

Typical Profile:

*0 to 1 inches; slightly decomposed plant material
1 to 9 inches; fine sandy loam
9 to 16 inches; fine sandy loam
16 to 22 inches; fine sandy loam
22 to 60 inches; fine sandy loam*

Map Unit Description (Brief)

State of Connecticut

Map Unit: 61B - Canton and Charlton soils, 3 to 8 percent slopes, very stony

Description Category: SOI

Canton And Charlton Soils, 3 To 8 Percent Slopes, Very Stony

This map unit is in the New England and Eastern New York Upland, Southern Part Major Land Resource Area. The mean annual precipitation is 37 to 49 inches (940 to 1244 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 45 percent Canton soils, 35 percent Charlton soils. 20 percent minor components

Canton soils

This component occurs on upland hill landforms. The parent material consists of melt-out till derived from schist, granite, and gneiss. The slope ranges from 3 to 8 percent and the runoff class is low. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 1.98 in/hr (moderately rapid), with about 5.6 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s

Typical Profile:

*0 to 1 inches; moderately decomposed plant material
1 to 3 inches; gravelly fine sandy loam
3 to 15 inches; gravelly loam
15 to 24 inches; gravelly loam
24 to 30 inches; gravelly loam
30 to 60 inches; very gravelly loamy sand*

Charlton soils

This component occurs on upland hill landforms. The parent material consists of melt-out till derived from granite, schist, and gneiss. The slope ranges from 3 to 8 percent and the runoff class is low. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 6.4 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s

Typical Profile:

*0 to 4 inches; fine sandy loam
4 to 7 inches; fine sandy loam
7 to 19 inches; fine sandy loam
19 to 27 inches; gravelly fine sandy loam
27 to 65 inches; gravelly fine sandy loam*

Map Unit Description (Brief)

State of Connecticut

Map Unit: 62C - Canton and Charlton soils, 3 to 15 percent slopes, extremely stony

Description Category: SOI

Canton And Charlton Soils, 3 To 15 Percent Slopes, Extremely Stony

This map unit is in the New England and Eastern New York Upland, Southern Part Major Land Resource Area. The mean annual precipitation is 37 to 49 inches (940 to 1244 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 45 percent Canton soils, 35 percent Charlton soils, 20 percent minor components.

Canton soils

This component occurs on upland hill landforms. The parent material consists of melt-out till derived from schist, granite, and gneiss. The slope ranges from 3 to 15 percent and the runoff class is low. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 1.98 in/hr (moderately rapid), with about 5.6 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s

Typical Profile:

*0 to 1 inches; moderately decomposed plant material
1 to 3 inches; gravelly fine sandy loam
3 to 15 inches; gravelly loam
15 to 24 inches; gravelly loam
24 to 30 inches; gravelly loam
30 to 60 inches; very gravelly loamy sand*

Charlton soils

This component occurs on upland hill landforms. The parent material consists of melt-out till derived from granite, schist, and gneiss. The slope ranges from 3 to 15 percent and the runoff class is low. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 6.4 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s

Typical Profile:

*0 to 4 inches; fine sandy loam
4 to 7 inches; fine sandy loam
7 to 19 inches; fine sandy loam
19 to 27 inches; gravelly fine sandy loam
27 to 65 inches; gravelly fine sandy loam*

Map Unit Description (Brief)

State of Connecticut

Map Unit: 62D - Canton and Charlton soils, 15 to 35 percent slopes, extremely stony

Description Category: SOI

Canton And Charlton Soils, 15 To 35 Percent Slopes, Extremely Stony

This map unit is in the New England and Eastern New York Upland, Southern Part Major Land Resource Area. The mean annual precipitation is 37 to 49 inches (940 to 1244 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 45 percent Canton soils, 35 percent Charlton soils. 20 percent minor components

Canton soils

This component occurs on upland hill landforms. The parent material consists of melt-out till derived from schist, granite, and gneiss. The slope ranges from 15 to 35 percent and the runoff class is medium. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 1.98 in/hr (moderately rapid), with about 5.6 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s

Typical Profile:

*0 to 1 inches; moderately decomposed plant material
1 to 3 inches; gravelly fine sandy loam
3 to 15 inches; gravelly loam
15 to 24 inches; gravelly loam
24 to 30 inches; gravelly loam
30 to 60 inches; very gravelly loamy sand*

Charlton soils

This component occurs on upland hill landforms. The parent material consists of melt-out till derived from granite, schist, and gneiss. The slope ranges from 15 to 35 percent and the runoff class is medium. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 6.4 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s

Typical Profile:

*0 to 4 inches; fine sandy loam
4 to 7 inches; fine sandy loam
7 to 19 inches; fine sandy loam
19 to 27 inches; gravelly fine sandy loam
27 to 65 inches; gravelly fine sandy loam*

Map Unit Description (Brief)

State of Connecticut

Map Unit: 73C - Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky

Description Category: SOI

Charlton-Chatfield Complex, 3 To 15 Percent Slopes, Very Rocky

This map unit is in the New England and Eastern New York Upland, Southern Part Major Land Resource Area. The mean annual precipitation is 37 to 49 inches (940 to 1244 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 45 percent Charlton soils, 30 percent Chatfield soils. 25 percent minor components.

Charlton soils

This component occurs on upland hill landforms. The parent material consists of melt-out till derived from granite, schist and gneiss. The slope ranges from 3 to 15 percent and the runoff class is low. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 6.4 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s

Typical Profile:

*0 to 4 inches; fine sandy loam
4 to 7 inches; fine sandy loam
7 to 19 inches; fine sandy loam
19 to 27 inches; gravelly fine sandy loam
27 to 65 inches; gravelly fine sandy loam*

Chatfield soils

This component occurs on upland hill and ridge landforms. The parent material consists of melt-out till derived from gneiss, granite, and schist. The slope ranges from 3 to 15 percent and the runoff class is low. The depth to a restrictive feature is 20 to 40 inches to bedrock (lithic). The drainage class is well drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 3.3 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s

Typical Profile:

*0 to 1 inches; highly decomposed plant material
1 to 6 inches; gravelly fine sandy loam
6 to 15 inches; gravelly fine sandy loam
15 to 29 inches; gravelly fine sandy loam
29 to 36 inches; unweathered bedrock*

Map Unit Description (Brief)

State of Connecticut

Map Unit: 73E - Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky

Description Category: SOI

Charlton-Chatfield Complex, 15 To 45 Percent Slopes, Very Rocky

This map unit is in the New England and Eastern New York Upland, Southern Part Major Land Resource Area. The mean annual precipitation is 37 to 49 inches (940 to 1244 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 45 percent Charlton soils, 30 percent Chatfield soils. 25 percent minor components.

Charlton soils

This component occurs on upland hill landforms. The parent material consists of melt-out till derived from granite, schist, and gneiss. The slope ranges from 15 to 45 percent and the runoff class is high. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 6.4 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s

Typical Profile:

0 to 4 inches; fine sandy loam

4 to 7 inches; fine sandy loam

7 to 19 inches; fine sandy loam

19 to 27 inches; gravelly fine sandy loam

27 to 65 inches; gravelly fine sandy loam

Chatfield soils

This component occurs on upland hill and ridge landforms. The parent material consists of melt-out till derived from gneiss, granite, and schist. The slope ranges from 15 to 45 percent and the runoff class is high. The depth to a restrictive feature is 20 to 40 inches to bedrock (lithic). The drainage class is well drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 3.3 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 7s

Typical Profile:

0 to 1 inches; highly decomposed plant material

1 to 6 inches; gravelly fine sandy loam

6 to 15 inches; gravelly fine sandy loam

15 to 29 inches; gravelly fine sandy loam

29 to 36 inches; unweathered bedrock

Map Unit Description (Brief)

State of Connecticut

Map Unit: 74C - Narragansett-Hollis complex, 3 to 15 percent slopes, very rocky

Description Category: SOI

Narragansett-Hollis Complex, 3 To 15 Percent Slopes, Very Rocky

This map unit is in the New England and Eastern New York Upland, Southern Part Major Land Resource Area. The mean annual precipitation is 37 to 50 inches (940 to 1270 millimeters) and the average annual air temperature is 45 to 54 degrees F. (7 to 12 degrees C.) This map unit is 55 percent Narragansett soils, 20 percent Hollis soils. 25 percent minor components.

Narragansett soils

This component occurs on upland hill and plain landforms. The parent material consists of eolian deposits over melt-out till derived from sandstone, shale, gneiss, and schist. The slope ranges from 3 to 15 percent and the runoff class is medium. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 6.3 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s

Typical Profile:

*0 to 6 inches; silt loam
6 to 15 inches; silt loam
15 to 24 inches; silt loam
24 to 28 inches; gravelly silt loam
28 to 60 inches; very gravelly loamy coarse sand*

Hollis soils

This component occurs on upland hill and ridge landforms. The parent material consists of melt-out till derived from granite, gneiss, and schist. The slope ranges from 3 to 15 percent and the runoff class is low. The depth to a restrictive feature is 10 to 20 inches to bedrock (lithic). The drainage class is somewhat excessively drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 1.8 inches (very low) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s

Typical Profile:

*0 to 1 inches; highly decomposed plant material
1 to 6 inches; gravelly fine sandy loam
6 to 9 inches; channery fine sandy loam
9 to 15 inches; gravelly fine sandy loam
15 to 25 inches; unweathered bedrock*

Map Unit Description (Brief)

State of Connecticut

Map Unit: 75C - Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes

Description Category: SOI

Hollis-Chatfield-Rock Outcrop Complex, 3 To 15 Percent Slopes

This map unit is in the New England and Eastern New York Upland, Southern Part Major Land Resource Area. The mean annual precipitation is 37 to 49 inches (940 to 1244 millimeters) and the average annual air temperature is 45 to 54 degrees F. (7 to 12 degrees C.) This map unit is 35 percent Hollis soils, 30 percent Chatfield soils, 15 percent Rock Outcrop, 20 percent minor components.

Hollis soils

This component occurs on upland hill and ridge landforms. The parent material consists of melt-out till derived from granite, gneiss, and schist. The slope ranges from 3 to 15 percent and the runoff class is low. The depth to a restrictive feature is 10 to 20 inches to bedrock (lithic). The drainage class is somewhat excessively drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 1.8 inches (very low) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s

Typical Profile:

*0 to 1 inches; highly decomposed plant material
1 to 6 inches; gravelly fine sandy loam
6 to 9 inches; channery fine sandy loam
9 to 15 inches; gravelly fine sandy loam
15 to 25 inches; unweathered bedrock*

Chatfield soils

This component occurs on upland hill and ridge landforms. The parent material consists of melt-out till derived from gneiss, granite, and schist. The slope ranges from 3 to 15 percent and the runoff class is low. The depth to a restrictive feature is 20 to 40 inches to bedrock (lithic). The drainage class is well drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 3.3 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s

Typical Profile:

*0 to 1 inches; highly decomposed plant material
1 to 6 inches; gravelly fine sandy loam
6 to 15 inches; gravelly fine sandy loam
15 to 29 inches; gravelly fine sandy loam
29 to 36 inches; unweathered bedrock*

Rock Outcrop

This component occurs on bedrock controlled landforms. The slope ranges from 3 to 15 percent and the runoff class is very high. The Nonirrigated Land Capability Class is 8

Map Unit Description (Brief)

State of Connecticut

Map Unit: 85B - Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony

Description Category: SOI

Paxton And Montauk Fine Sandy Loams, 3 To 8 Percent Slopes, Very Stony

This map unit is in the New England and Eastern New York Upland, Southern Part Major Land Resource Area. The mean annual precipitation is 35 to 56 inches (889 to 1422 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 55 percent Paxton soils, 30 percent Montauk soils, 15 percent minor components.

Paxton soils

This component occurs on upland hill and drumlin landforms. The parent material consists of lodgement till derived from granite, gneiss, and schist. The slope ranges from 3 to 8 percent and the runoff class is medium. The depth to a restrictive feature is 20 to 40 inches to densic material. The drainage class is well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 3.4 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 24 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s

Typical Profile:

*0 to 8 inches; fine sandy loam
8 to 15 inches; fine sandy loam
15 to 26 inches; fine sandy loam
26 to 65 inches; gravelly fine sandy loam*

Montauk soils

This component occurs on upland hill and drumlin landforms. The parent material consists of sandy lodgement till derived from granite and gneiss. The slope ranges from 3 to 8 percent and the runoff class is low. The depth to a restrictive feature is 20 to 38 inches to densic material. The drainage class is well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 3.3 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 27 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 6s

Typical Profile:

*0 to 4 inches; fine sandy loam
4 to 14 inches; fine sandy loam
14 to 25 inches; sandy loam
25 to 39 inches; gravelly loamy coarse sand
39 to 60 inches; gravelly sandy loam*

Map Unit: 306 - Udorthents-Urban land complex

Description Category: SOI

Udorthents-Urban Land Complex

This map unit is in the New England and Eastern New York Upland, Southern Part Connecticut Valley Major Land Resource Area. The mean annual precipitation is 32 to 50 inches (813 to 1270 millimeters) and the average annual air temperature is 45 to 55 degrees F. (7 to 13 degrees C.) This map unit is 50 percent Udorthents soils, 35 percent Urban Land, 15 percent minor components.

Udorthents soils

This component occurs on cut (road, railroad, etc.), railroad bed, road bed, spoil pile, urban land, fill, and spoil pile landforms. The slope ranges from 0 to 25 percent and the runoff class is medium. The depth to a restrictive feature varies, but is commonly greater than 60 inches. The drainage class is typically well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 9.0 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.4 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table is greater than 60 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline).

The Nonirrigated Land Capability Class is 3e

Typical Profile:

*0 to 5 inches; loam
5 to 21 inches; gravelly loam
21 to 80 inches; very gravelly sandy loam*

Urban Land

Urban land is land mostly covered by streets, parking lots, buildings, and other structures of urban areas. The slope ranges from 0 to 35 percent and the runoff class is very high. The Nonirrigated Land Capability Class is 8

Map Unit Description (Brief)

State of Connecticut

Map Unit: 307 - Urban land

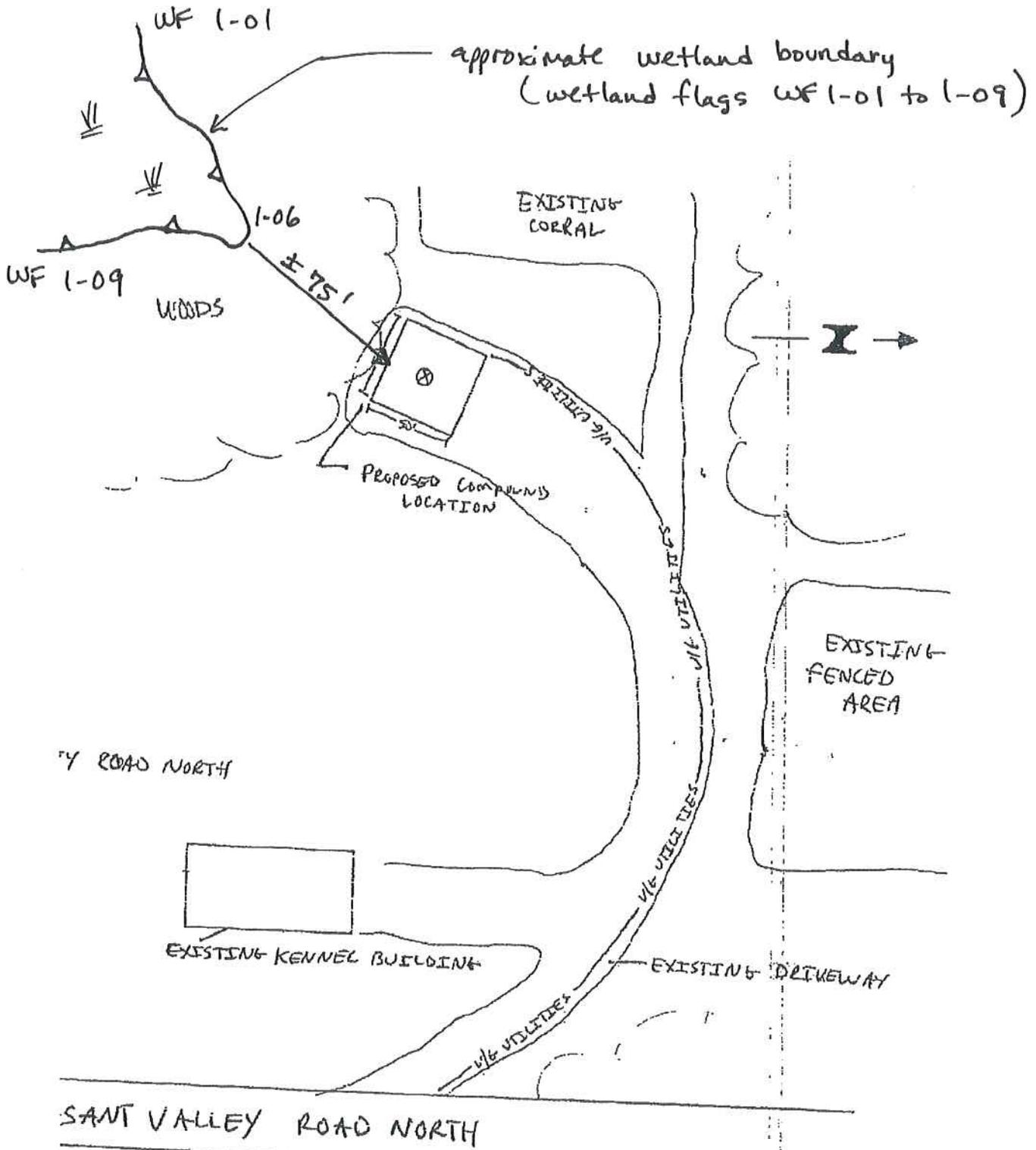
Description Category: SOI

Urban Land

This map unit is in the New England and Eastern New York Upland, Southern Part Connecticut Valley Major Land Resource Area. The mean annual precipitation is 38 to 50 inches (965 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Urban Land. 20 percent minor components.

Urban Land

Urban land is land mostly covered by streets, parking lots, buildings, and other structures of urban areas. The slope ranges from 0 to 45 percent and the runoff class is very high. The Nonirrigated Land Capability Class is 8



NOTE: NOT TO SCALE

1294 Pleasant Valley Road North
Groton, CT

Vanasse Hangen Brustlin, Inc
WETLAND SKETCH
10/30/06 DEG



OPTASITE, INC.
RESEARCH DRIVE, SUITE 200C
WESTBOROUGH, MA 01581



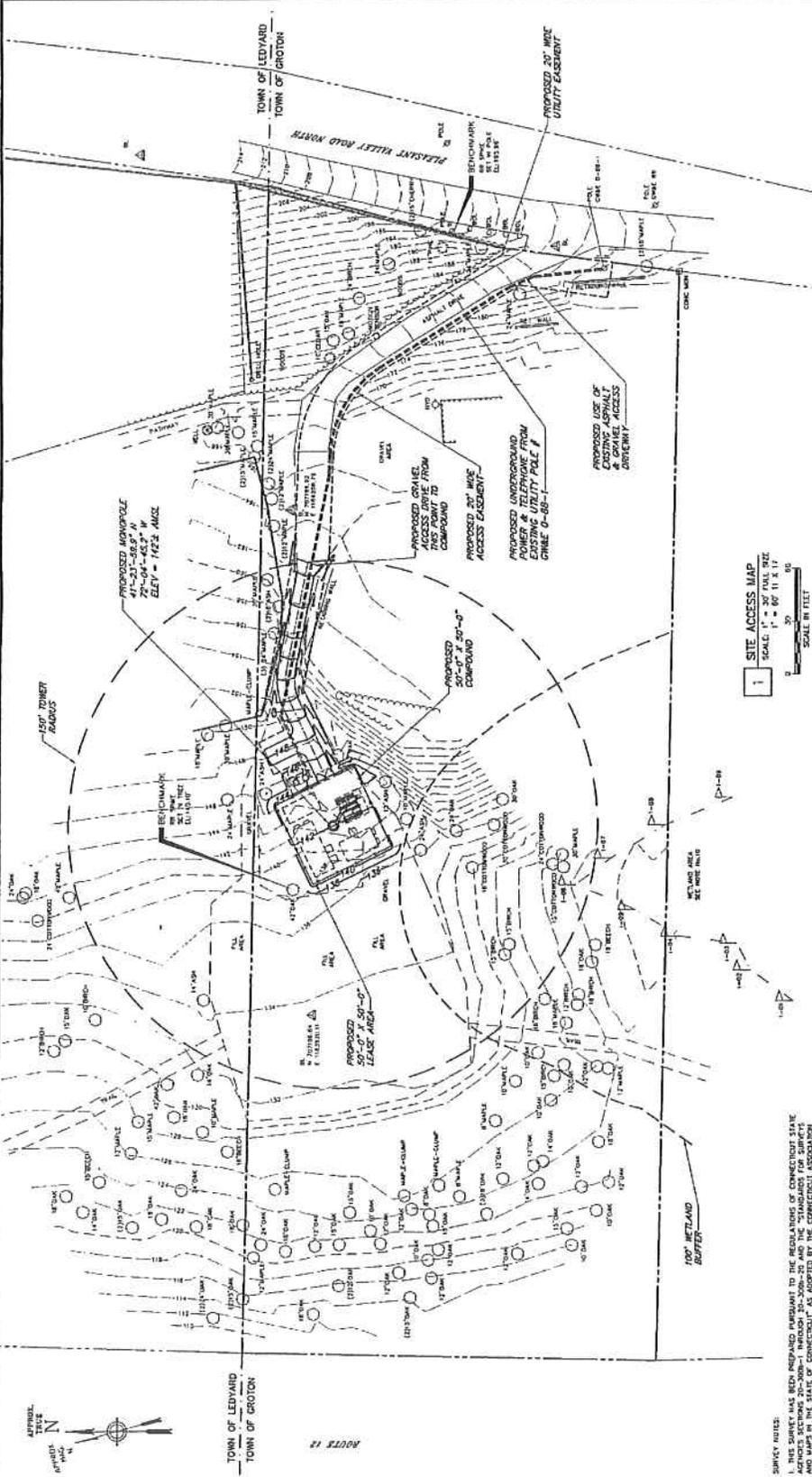
NO.	DATE	BY	FOR	REVISIONS
1	11/1/00
2	11/1/00

IT IS A VIOLATION OF LAW FOR ANY PERSON
UNLESS HE OR SHE ACTS UNDER THE DIRECTION
OF A REGISTERED PROFESSIONAL ENGINEER
TO SIGN THIS DOCUMENT.

SITE ID:
CT-999-0108
SITE NAME:
NEW LONDON
SITE ADDRESS:
1294 PLEASANT VALLEY
ROAD NORTH
GROTON, CT 06340
NEW LONDON COUNTY

SHEET TITLE
SITE ACCESS MAP

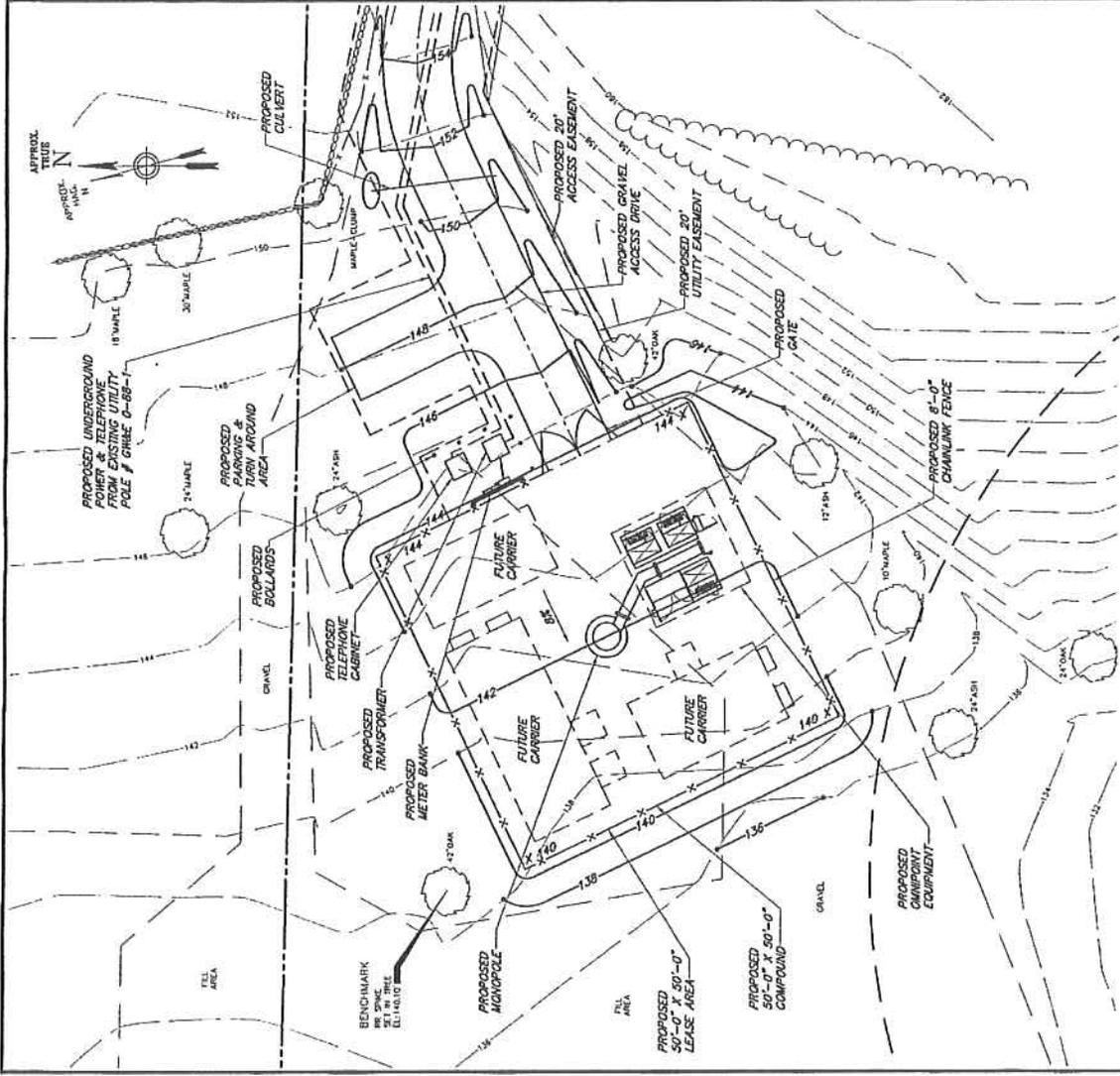
SHEET NUMBER
A02



1 SITE ACCESS MAP
SCALE: 1" = 60' (1 X 1")
SCALE IN FEET

- SURVEY NOTES:**
- THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES, SECTIONS 20-300b-1 THROUGH 20-300b-29 AND THE "STANDARDS FOR SURVEYS OF LAND SURVEYORS" AS SET FORTH IN § 20-300b-1. ALL SURVEYING WAS PERFORMED BY A LICENSED SURVEYOR AND ALL MEASUREMENTS WERE MADE IN ACCORDANCE WITH THE STANDARDS OF THE PROFESSION. ALL INFORMATION IS NOT TO BE CONSIDERED AS AN ACCURATE FIELD SURVEY MAP.
 - THE SURVEY COMPLETION PLAN
 - BOUNDARY DETERMINATION CATEGORY: NONE
 - CLASS OF ACCURACY: VERTICAL CLASS 1-2
TOPGRAPHIC CLASS 1-1
 - PROPERTY LINE SHOWN HEREON ARE FROM RECORD DEEDS AND TAX MAPS AS SHOWN ON THE ATTACHED RECORD DEEDS AND TAX MAPS. THIS SURVEY WAS NOT PERFORMED BY A LICENSED SURVEYOR AND ALL MEASUREMENTS WERE MADE IN ACCORDANCE WITH THE STANDARDS OF THE PROFESSION. ALL INFORMATION IS NOT TO BE CONSIDERED AS AN ACCURATE FIELD SURVEY MAP.
 - THIS MAP WAS PREPARED BY CLOUGH HANCOCK & ASSOCIATES LLP FROM AN OCTOBER 2006 FIELD SURVEY.
 - THE BIRTH ORIGINATOR IS THE NORTH BASED ON GPS ORIGINATORS TAKEN AT THE TIME OF SURVEY. THE SURVEYOR HAS REVIEWED THE SURFACE LOCATIONS AND MEASUREMENTS ON HAND FROM A FIELD SURVEY, WHEREBY THE LOCATION OF THE SURVEY POINTS, SIZE, TYPE AND LOCATION OF ALL UTILITIES AND CONSTRUCTION SHALL BE SHOWN AS NEARLY AS POSSIBLE TO SURVEYANCE ACTIVITY.

- SUBJECT TO ANY STATEMENT OF FACTS THAT AN UP-TO-DATE ABSTRACT OF TITLE WOULD DISCLOSE.
 - SUBJECT TO ALL RIGHTS, EASEMENTS, CONDITIONS OR RESTRICTIONS OF RECORD.
 - LANDS/ADJACENTS/ELEVATIONS WERE OBTAINED USING HIS CORE BASE STATION HMD 3000. IF ANY LANDS/ADJACENTS/ELEVATIONS WERE OBTAINED USING HIS CORE BASE STATION HMD 3000, THE VERTICAL ANGLE OF THE STRUCTURE HEIGHT AS SHOWN, IF ANY, DETERMINED BY VERTICAL ANGLE OR INFORMATION SHOWN BASED ON FAA DC CORRECTION/ADJUSTMENT LEVEL DEFINED AS VERTICAL ANGLE OF 1.230 FEET / 1 METERS.
 - SITE FALLS WITHIN ZONE 10C. ZONE 10C IS AREAS OF MINIMAL FLOODING AS SHOWN ON FLOOD INSURANCE RATE MAP, TOWN OF GROTON, CONNECTICUT, NEW LONDON COUNTY, PANEL 2 OF 11.
 - WETLANDS WERE MADE ON FIELD RELOCATED POINTS ESTABLISHED BY MANASSE HANCOCK & ASSOCIATES, P.C.
- MAP REFERENCES:
GROTON THE MAP TOWN OF LEDYARD CONNECTICUT, SHEET 113 OF 144, PREPARED BY CHARLES A. HANCOCK & ASSOCIATES, P.C.

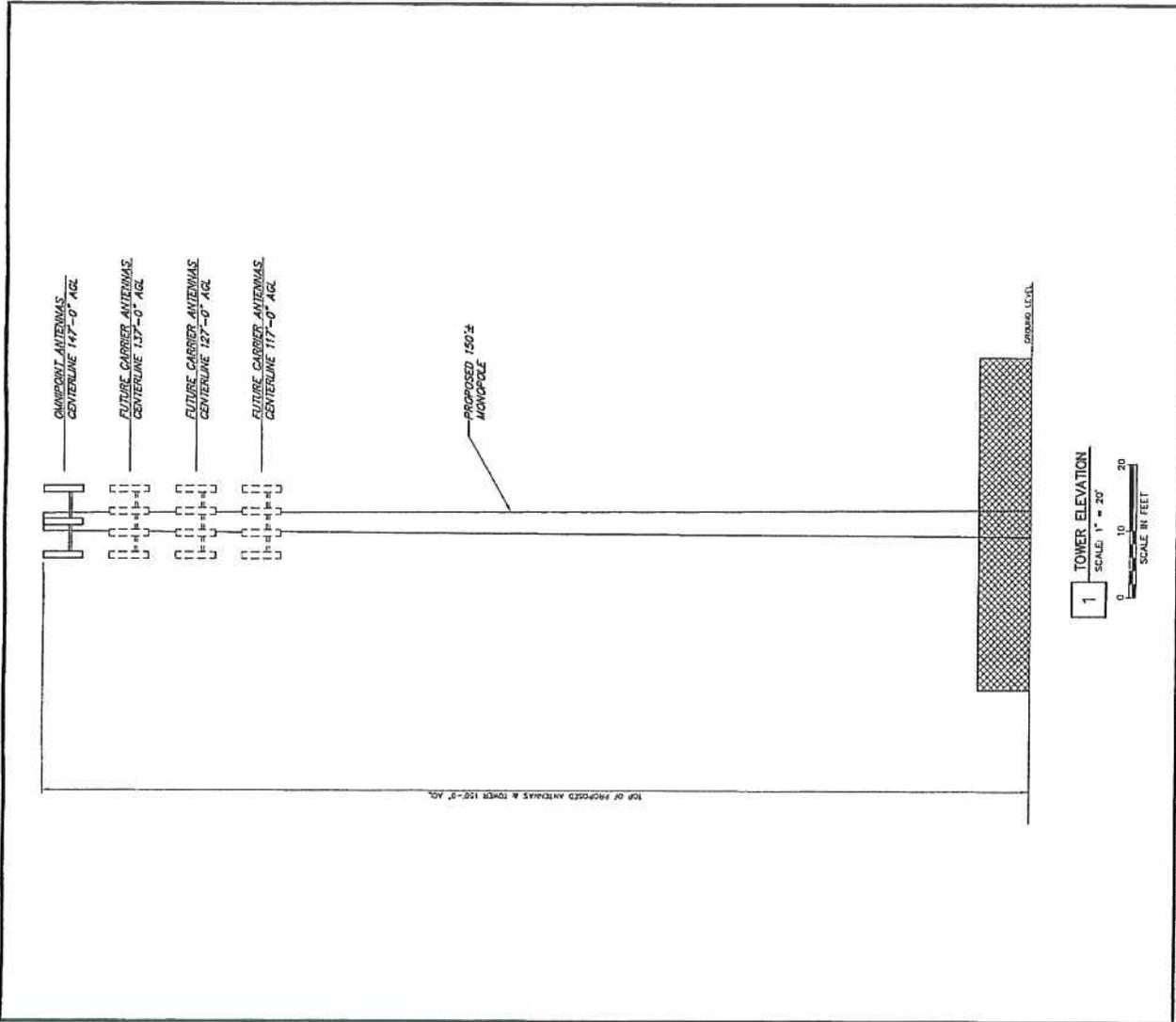


1 COMPOUND PLAN
 SCALE: 1" = 20'
 SCALE IN FEET

BASELINE NOTES:
 1. ALL DIMENSIONS ARE SHOWN FROM A SURVEY PERFORMED BY CLOUGH HANDBOUR & ASSOCIATES L.P. IN OCTOBER 2004.

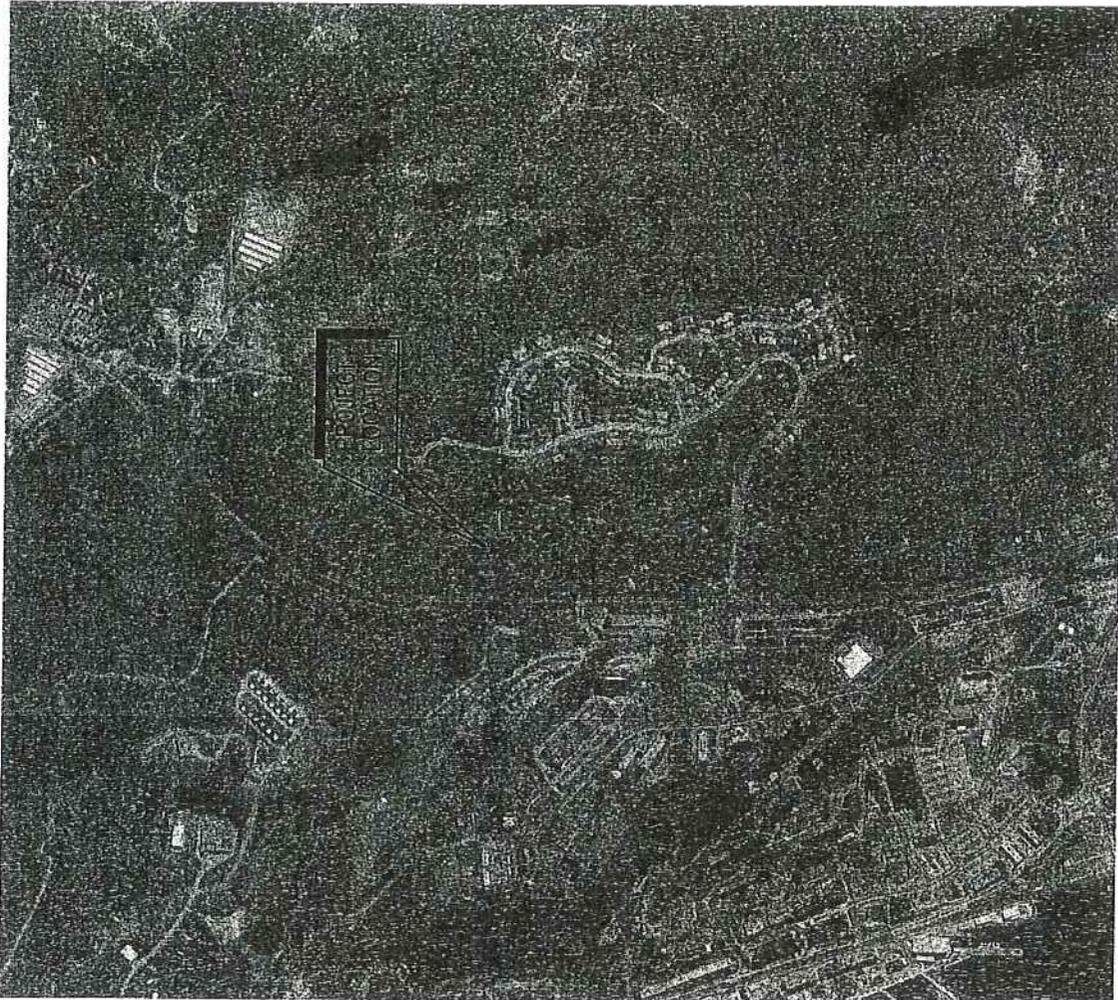
<p>CLHA CLOUGH HANDBOUR & ASSOCIATES L.P. 2100 Main Street, Suite 210 Groton, CT 06340</p>	<p>Optasite OPTASITE, INC. 1 RESEARCH DRIVE, SUITE 200C GROTON, CT 06340</p>	<p>1294 PLEASANT VALLEY ROAD NORTH GROTON, CT 06340 NEW LONDON COUNTY</p>
<p>SHEET TITLE: COMPOUND PLAN</p>	<p>SITE ID: CT-999-0108 SITE NAME: NEW LONDON SITE ADDRESS: 1294 PLEASANT VALLEY ROAD NORTH GROTON, CT 06340 NEW LONDON COUNTY</p>	<p>DATE: 11/14/06 REVISION: 0</p>

File: 10383101.dwg Date: 11/14/06 10:51:30 AM Plot Date: 11/14/06 10:51:30 AM Plot Scale: 1" = 20' Plot Size: 11.00 x 17.00



1 TOWER ELEVATION
 SCALE: 1" = 20'
 0 10 20
 SCALE IN FEET

<p>CHIA <small>CLOUGH MARSHALL & ASSOCIATES LLP</small> <small>2100 Elm Street, Suite 110, Rocky Hill, CT 06067-2228</small> <small>Phone: (860) 319-3333 • Fax: (860) 319-3334</small></p>	<p>Optasite <small>OPTASITE, INC.</small> <small>1 RESEARCH DRIVE, SUITE 200C</small> <small>WESTBOROUGH, MA 01581</small></p>	<p>SITE ID: CT-999-0108 SITE NAME: NEW LONDON SITE ADDRESS: 1294 PLEASANT VALLEY ROAD NORTH GROTON, CT 06340 NEW LONDON COUNTY</p>	<p>SHEET TITLE: TOWER ELEVATION DATE: 11/14/06 REVISION: 0</p>
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1 2004 AERIAL PHOTO
SCALE: 1" = 1000'



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Optasite
 OPTASITE, INC.
 1 RESEARCH DRIVE, SUITE 200C
 WESTBOROUGH, MA 01581

SITE ID:
 CT-999-0108
 SITE NAME:
 NEW LONDON
 SITE ADDRESS:
 1294 PLEASANT VALLEY ROAD NORTH
 GROTON, CT 06340
 NEW LONDON COUNTY

SHEET TITLE:
 AERIAL PHOTO
 DATE:
 11/14/06
 REVISION:
 0



CLOUGH HARBOUR & ASSOCIATES LLP

Site Name: New London
Site Number: CT-999-0108
Site Address: 1294 Pleasant Valley Road North, Groton, CT 06340

Access distances:

Distance of access over existing asphalt driveway: 180'
Distance of access over existing gravel driveway: 60'
Distance of access over new gravel driveway: 130'
Total distance of site access: 370'

Distance to Nearest Wetlands:

105' to the South

Distance to Property Lines:

45' to the northern property boundary
190' to the southern property boundary
300' to the western property boundary
340' to the eastern property boundary

Residence Information:

There are 15 residences within 1,000' feet of the tower. The closest residence is 375' to the Southeast.

Tree Removal Count:

No trees with a diameter of 6" or larger need to be removed to construct the access road and compound.