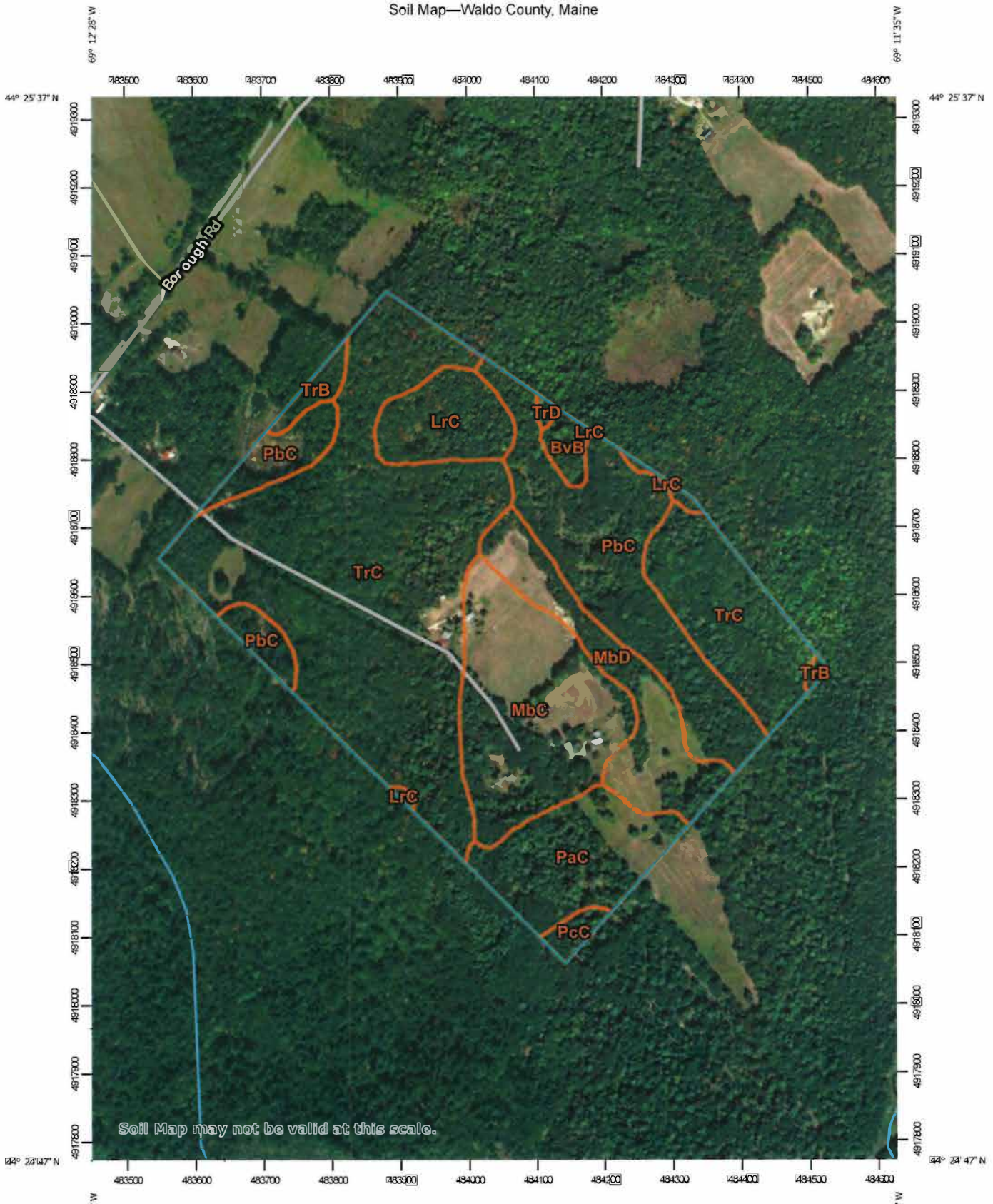


Map Scale: 1:7,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Waldo County, Maine
Survey Area Data: Version 16, Sep 19, 2016

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

Date(s) aerial images were photographed: Dec 31, 2009—Nov 1, 2016

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

Waldo County, Maine (ME027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BvB	Brayton fine sandy loam, 0 to 8 percent slopes, very stony	1.3	1.1%
LrC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	6.1	5.0%
MbC	Marlow fine sandy loam, 8 to 15 percent slopes	17.1	14.1%
MbD	Marlow fine sandy loam, 15 to 25 percent slopes	9.6	7.9%
PaC	Peru fine sandy loam, 8 to 15 percent slopes	9.6	7.9%
PbC	Peru fine sandy loam, 8 to 15 percent slopes, very stony	21.4	17.6%
PcC	Peru fine sandy loam, 8 to 15 percent slopes, extremely stony	1.0	0.8%
TrB	Tunbridge-Lyman complex, 3 to 8 percent slopes, rocky	1.4	1.2%
TrC	Tunbridge-Lyman complex, 8 to 15 percent slopes, rocky	53.7	44.2%
TrD	Tunbridge-Lyman complex, 15 to 25 percent slopes, rocky	0.2	0.2%
Totals for Area of Interest		**121.4**	**100.0%**

TABLE 4D DISPOSAL FIELD SIZING

Multiply the hydraulic loading rate ("Sizing Factor" shown in Table in square feet per gallon per day) times the design flow (gallons per day). This equation gives the minimum square feet of bottom and side wall area below the invert needed for a standard stone-filled disposal field. For trench disposal field sizing, see Section 4(Q)(6). Proprietary devices may be used in lieu of stone filled fields.

Parent Material	Profile	Description	Sizing Factor
Lodgment (Basal) Glacial Till	1	Silt loam textured soils throughout the entire profile. The lower horizons usually have prismatic or platy structures. This profile tends to become firm dense and impervious with depth thus this profile may have a hydraulically restrictive horizon. Angular rock fragments are usually present. Occasionally cobbles and stones may be present.	**4.1 S.F. Large**
Ablation Glacial Till	2	Loam to sandy loam textured soils throughout the entire profile. This profile does not have a hydraulically restrictive horizon. Angular rock fragments are present. Occasionally cobbles and stones may be present.	**3.3 S.F. Med. Large**
Lodgment (Basal) Glacial Till	3	Loam to loamy sand textured soils throughout the entire profile. The lower soil horizons usually have well defined prismatic or platy structures that are very compact and are difficult to excavate. These lower horizons are considered hydraulically restrictive. Angular rock fragments are present. Occasionally cobbles and stones are present.	**3.3 S.F. Med. Large**
Ablation Glacial Till	4	Sandy loam to loamy sand textured upper horizon(s) overlying loamy sand textured lower horizon. This profile tends to be loose and easy to excavate. Lower horizons tend not to be firm and are not considered hydraulically restrictive. Angular rock fragments are present along with partially water-worn cobbles and stones	**2.6 S.F. Medium**
Stratified Glacial Drift	5	Loam to loamy sand textured upper horizons overlying fine and medium sand parent materials. Stratified horizons of water-sorted materials may be present. Lower horizons tend to be granular or massive. Entire profile tends to be loose except that saturated horizons may be cemented and therefore firm and are considered hydraulically restrictive. Horizons with rounded rock fragments are common.	**2.6 S.F. Medium**
Stratified Glacial Drift	6	Loamy sand to sand textured upper horizons overlying stratified coarse sands or gravel parent materials. Stratified horizons of water-sorted materials may be present. Entire profile tends to be loose except that saturated horizons may be cemented and therefore firm and are considered hydraulically restrictive. Horizons with rounded rock fragments are common.	**2.6 S.F. Medium**
Mixed geological origins	7	Fifteen (15) or more inches of sandy loam to loamy sand glacial till or loamy sand to sand stratified drift parent material overlying marine or lacustrine deposited silt to silty clay or fifteen (15) or more inches of loamy sand to sand stratified drift parent material overlying firm basal till. The upper horizons tend to be granular in structure. The lower horizons tend to be firm and massive in structure and are considered to be hydraulically restrictive. Rock fragments may be present in upper horizons but are usually absent in lower horizons, except for basal till.	**3.3 S.F. M. Large**
Lacus-trine deposits	8	Loam to fine sandy loam upper horizon(s) overlying firm silt loam to silt textured lower horizons. The upper horizons tend to be granular in structure. The lower horizons tend to be firm and massive in structure and are considered to be hydraulically restrictive. Stratified lenses of fine sand and sandy loam may be present in the lower horizons. Coarse rocks are usually absent throughout entire profile.	**4.1 S.F. Large**
Marine deposits	9	Silt loam textured upper horizons overlying firm silt loam to silty clay textured lower horizons. The lower horizons tend to be very firm and are considered to be hydraulically restrictive. Coarse rock are usually absent throughout entire profile. Thin lenses of very fine sand to silt may be present in the lower horizons	**5.0 S.F. EX. Large**
Organic deposits	10	Partially decomposed organic material at least 16" in thickness.	**Not Permitted**
Alluvial dune beach deposits	11	These soils have no typical profile. Variable in texture and exhibit very little weathering. They are deposited in flood plains sand dunes or beach environments.	**Best Fit**
Filled Site	12	These soils have no typical profile. Variable in texture. May contain man-made materials.	**Best Fit**

Table 7–1 Criteria for assignment of hydrologic soil group (HSG)

Depth to water impermeable layer 1/	Depth to high water table 2/	K_{sat} of least transmissive layer in depth range	K_{sat} depth range	HSG 3/
<50 cm [<20 in]	—	—	—	D
50 to 100 cm [20 to 40 in]	<60 cm [<24 in]	>40.0 µm/s (>5.67 in/h)	0 to 60 cm [0 to 24 in]	A/D
		>10.0 to ≤40.0 µm/s (>1.42 to ≤5.67 in/h)	0 to 60 cm [0 to 24 in]	B/D
		>1.0 to ≤10.0 µm/s (>0.14 to ≤1.42 in/h)	0 to 60 cm [0 to 24 in]	C/D
		≤1.0 µm/s (≤0.14 in/h)	0 to 60 cm [0 to 24 in]	D
	≥60 cm [≥24 in]	>40.0 µm/s (>5.67 in/h)	0 to 50 cm [0 to 20 in]	A
		>10.0 to ≤40.0 µm/s (>1.42 to ≤5.67 in/h)	0 to 50 cm [0 to 20 in]	B
		>1.0 to ≤10.0 µm/s (>0.14 to ≤1.42 in/h)	0 to 50 cm [0 to 20 in]	C
		≤1.0 µm/s (≤0.14 in/h)	0 to 50 cm [0 to 20 in]	D
>100 cm [>40 in]	<60 cm [<24 in]	>10.0 µm/s (>1.42 in/h)	0 to 100 cm [0 to 40 in]	A/D
		>4.0 to ≤10.0 µm/s (>0.57 to ≤1.42 in/h)	0 to 100 cm [0 to 40 in]	B/D
		>0.40 to ≤4.0 µm/s (>0.06 to ≤0.57 in/h)	0 to 100 cm [0 to 40 in]	C/D
		≤0.40 µm/s (≤0.06 in/h)	0 to 100 cm [0 to 40 in]	D
	60 to 100 cm [24 to 40 in]	>40.0 µm/s (>5.67 in/h)	0 to 50 cm [0 to 20 in]	A
		>10.0 to ≤40.0 µm/s (>1.42 to ≤5.67 in/h)	0 to 50 cm [0 to 20 in]	B
		>1.0 to ≤10.0 µm/s (>0.14 to ≤1.42 in/h)	0 to 50 cm [0 to 20 in]	C
		≤1.0 µm/s (≤0.14 in/h)	0 to 50 cm [0 to 20 in]	D
	>100 cm [>40 in]	>10.0 µm/s (>1.42 in/h)	0 to 100 cm [0 to 40 in]	A
		>4.0 to ≤ 10.0 µm/s (>0.57 to ≤1.42 in/h)	0 to 100 cm [0 to 40 in]	B
		>0.40 to ≤4.0 µm/s (>0.06 to ≤0.57 in/h)	0 to 100 cm [0 to 40 in]	C
		≤0.40 µm/s (≤0.06 in/h)	0 to 100 cm [0 to 40 in]	D

1/ An impermeable layer has a K_{sat} less than 0.01 µm/s [0.0014 in/h] or a component restriction of fragipan; duripan; petrocalcic; orstein; petrogypsic; cemented horizon; densic material; placic; bedrock, paralithic; bedrock, lithic; bedrock, densic; or permafrost.

2/ High water table during any month during the year.

3/ Dual HSG classes are applied only for wet soils (water table less than 60 cm [24 in]). If these soils can be drained, a less restrictive HSG can be assigned, depending on the K_{sat}.

SITE IDENTIFICATION: **DRAINAGE CLASS:** **PARENT MATERIAL:**

SOIL SERIES: **TAXONOMIC CLASS:**

HYDROPLOGIC SOIL GROUP: **SHWT:** **DEPTH TO LIMITING FACTOR:** **DEPTH TO IMPERBEABLE LAYER:**

HORIZON	DEPTH (IN.)	MATRIX COLOR	TEXTURE	STRUCTURE	CONSISTENCE	REDOX FEATURES	NOTES / OBSERVATIONS

COMMENTS:

8/8/2017

David Marceau
82 Higgins Rd North
Searsmont ME 04973

THE UNIVERSITY OF MAINE

received: 7/26/2017

Sample type - soil
Analysis - Particle Size Distribution

Job # 1969

	Sand Fractions (% of total sample)					Total			
Sample ID	V Coarse	Coarse	Medium	Fine	V Fine	% Sand	% Silt	% Clay	Texture Class
TP1 40"	7.7	6.4	5.4	12.0	20.0	51	44	5	Loam/Sandy loam
TP2 0-7"	6.7	4.8	3.9	8.8	13.4	38	50	13	Silt loam/Loam
TP2 7-20"	5.3	4.3	3.5	8.2	15.8	37	52	11	Silt loam/Loam
TP2 20-25"	4.2	4.4	4.2	9.8	15.3	38	52	10	Silt loam/Loam
TP2 25-32"	4.1	4.7	4.4	9.8	14.7	38	50	13	Silt loam/Loam
TP2 32-40"	5.0	5.1	4.4	9.5	13.8	38	50	13	Silt loam/Loam
TP3 0-7"	5.1	3.5	3.1	8.0	15.1	35	55	10	Silt loam
TP3 7-15"	3.3	3.4	2.9	7.7	17.2	34	54	11	Silt loam
TP3 15-20"	4.2	4.1	3.8	9.3	18.6	40	49	11	Loam
TP3 20-24"	7.3	6.5	5.7	11.7	16.0	47	48	5	Loam
TP3 24-32"	10.3	9.2	7.6	15.1	15.3	57	38	5	Sandy loam
TP3 32-40"	10.5	10.1	8.2	15.3	13.3	57	39	4	Sandy loam
TP4 40"	7.4	7.9	6.6	14.2	13.7	50	43	8	Loam

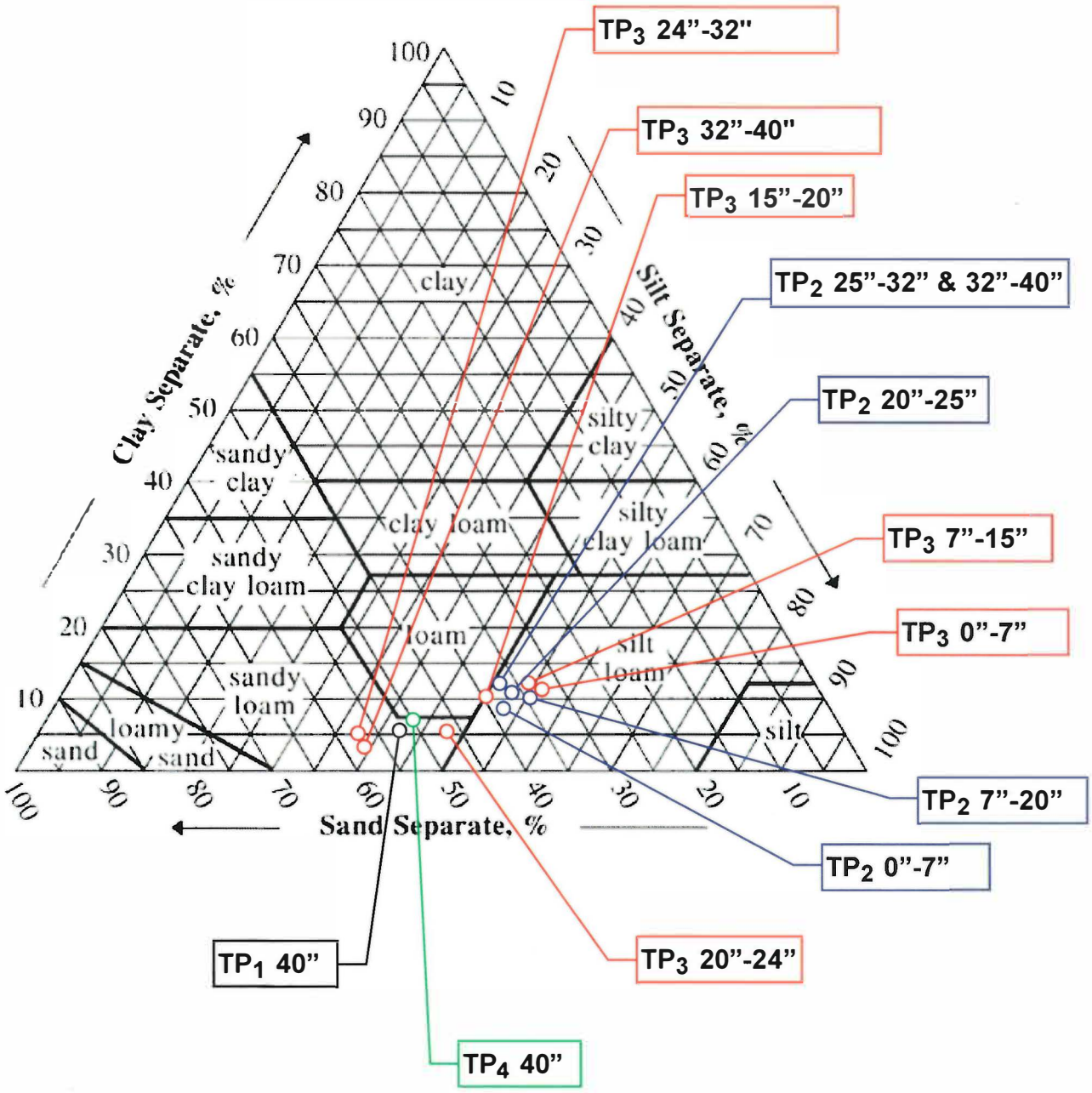
Particle size analysis was run after overnight dispersion in calgon. Clay was measured by the hydrometer method. Total sand was determined gravimetrically by wet sieving. Silt is calculated as the remainder of the sample. After drying and weighing, the sand fraction was dry sieved through #20, #40, #60, and # 140 sieves corresponding to very coarse, coarse, medium, and fine sand. Material passing #140 comprised very fine sand.

All results are presented as percent by weight of the < 2mm fraction of each sample. Particle sizes and texture classes are from the USDA.

MAPSS Workshop

September 6, 2017

USDA NRCS Soil Textural Triangle



SITE IDENTIFICATION: TEST PIT 1 DRAINAGE CLASS: Moderately Well Drained PARENT MATERIAL: Glacial Till

SOIL SERIES: PERU TAXONOMIC CLASS: Coarse loamy, isotic, frigid Aquic Haplorthods

HYDROLOGIC SOIL GROUP: B (RIT) SHWT: RANGE 38 - > 50inches DEPTH TO WATER IMPERMEABLE LAYER: RANGE: 38-46inches

HORIZON	DEPTH (IN.)	MATRIX COLOR	TEXTURE	STRUCTURE	CONSISTENCE	REDOX FEATURES	NOTES / OBSERVATIONS
Ap1	0-12	10YR 4/4 Dark Yellowish Brown	Loam	Granular	Very Friable	None	This horizon appeared to be eroded or caused by some type of accumulation.
Ap2	12-22	10YR 4/4 Dark Yellowish Brown	Loam	Granular	Very Friable	None	There was a minor change in soil color noted. This could be called a buried Ap.
Bw	22-38	10YR 5/6 Yellowish Brown	Very Fine Sandy Loam	Subangular blocky	Friable	None	This horizon may make spodic criteria based upon chemistry but does not based upon color.
B C	38-46	2.5 YR 5/6 Light Olive Brown	Loam *(Sandy Loam)	Blocky with some platy noted.	Friable	Common Fine 7.5 YR 5/6 Strong Brown and 10 YR 5/2 Grayish Brown	Common fine roots
Cd	46-50	2.5YR 5/4 Light Olive Brown	Very Fine Sandy Loam	Platy/Prismatic	Firm	Common Fine 7.5 YR 5/6 Strong Brown and 10 YR 5/2 Grayish Brown	Few roots notes along prism faces.

COMMENTS: There was a spodic horizon found within areas adjacent to this pit in areas not disturbed by farming activities. Textures were based upon a consensus of soil scientists who examined the pit. The depth to Limiting Factor for site evaluation purposes is 28 inches due to restrictive layer. There was a lot of discussion among the experts as to whether the Cd was above or below 40 inches. The Cd had a range of 38 to 46 inches within the pit.

SITE IDENTIFICATION: TEST PIT 2 DRAINAGE CLASS: Well Drained PARENT MATERIAL: Glacial Till

SOIL SERIES : Marlow TAXONOMIC CLASS: Coarse loamy, isotic, frigid Oxyaquic Haplorthods

HYDROLOGIC SOIL GROUP: B SHWT: None DEPTH TO WATER IMPERMEABLE LAYER RANGE: 28-41 inches

HORIZON	DEPTH (IN.)	MATRIX COLOR	TEXTURE	STRUCTURE	CONSISTENCE	REDOX FEATURES	NOTES / OBSERVATIONS
Ap	0-12	10YR 4/4 Dark Yellowish Brown	Loam *Silt Loam	Granular	Very Friable	None	Many very fine through coarse roots.
Bs	12-19	10YR 5/8 Yellowish Brown	Loam *Silt loam	Granular	Very Friable	None	The colors for this horizon did not make the criteria for a spodic horizon however the NRCS was confident it would be spodic based upon chemistry.
Bw	19-25	2.5 YR 5/6 Light Olive Brown	Loam *Silt loam	Granular	Very Friable	None	Common very fine and fine roots. Few medium roots.
B C	25-28	2.5 YR 5/4 Olive Brown	Loam *Silt loam	Subangular blocky	Friable	None	Common fine roots and very fine roots.
Cd	28-46	2.5YR 4/4 Light Olive Brown	Very Fine Sandy Loam *Silt loam	Platy/Prismatic	Firm	None	Few fine roots notes along prism faces.

COMMENTS: There were spodic horizons found within areas adjacent to this pit in areas not disturbed by farming activities. Textures were based upon a consensus of soil scientists who examined the pit. The NRCS felt the Bs horizon would meet spodic criteria based upon chemistry. The Bw could be labeled a Bs2. The depth to Limiting Factor for site evaluation purposes is 23-28 inches due to restrictive layer. Some experts noted high chroma redox (7.5 YR 4/4) on pore linings in the Cd.

SITE IDENTIFICATION: TEST PIT 3 DRAINAGE CLASS: Moderately Well Drained PARENT MATERIAL: Glacial Till

SOIL SERIES : Peru TAXONOMIC CLASS: Coarse loamy, isotic, frigid Aquic Haplorthods

HYDROLOGIC SOIL GROUP: C/D (RIT) SHWT: RANGE: 18-25 inches DEPTH TO WATER IMPERMEABLE LAYER: RANGE 22-30 inches

HORIZON	DEPTH (IN.)	MATRIX COLOR	TEXTURE	STRUCTURE	CONSISTENCE	REDOX FEATURES	NOTES / OBSERVATIONS
Oe	0-1	10 YR 3/1	N/A	Granular	Very Friable	None	
Ap	0-7	10YR 3/3 Dark Brown	Loam *Silt loam	Granular	Very Friable	None	Many very fine through medium roots. Common coarse roots.
Bs	7-16	7.5 YR 4/6 Strong Brown	Loam *Silt loam	Subangular blocky	Friable	None	These colors qualified for a spodic horizon.
B C	16-22	2.5 YR 5/4 Olive Brown	Loam *Loam/ Silt loam	Subangular blocky	Friable	None	Common fine roots and very fine roots.
Cd	22-50	2.5YR 4/4 Light Olive Brown	Loam *Sandy loam	Platy/Prismatic	Very Firm	Common Course Distinct 2.5 YR 5/3 Light Olive Brown	Few fine roots notes along prism faces.

COMMENTS: Textures were based upon a consensus of soil scientists who examined the pit. The range to depth to Limiting Factor for site evaluation purposes is 18-25 inches due to SHWT. The Cd could be called as massive breaking to prismatic structure. The SHWT ranged from 18 to 25 inches within the pit. The Cd ranged from 22 to 30 inches within the pit. Test pit 3 appeared to be on the lower boundary of the C/D hydrologic soil group location based upon the RI triangle.

SITE IDENTIFICATION: TEST PIT 4 DRAINAGE CLASS: Somewhat Poorly Drained/MWD PARENT MATERIAL: Glacial Till

SOIL SERIES: Colonel TAXONOMIC CLASS: Loamy, isotic, frigid. shallow Aquic Haplorthods

HYDROLOGIC SOIL GROUP: D SHWT: RANGE: 15-22″ DEPTH TO WATER IMPERMEABLE LAYER: 31-37 inches

HORIZON	DEPTH (IN.)	MATRIX COLOR	TEXTURE	STRUCTURE	CONSISTENCE	REDOX FEATURES	NOTES / OBSERVATIONS
Ap	0-5	10YR 3/3 Dark Brown	Loam	Granular	Very Friable	None	Many very fine through coarse roots.
Bw1	5-15	10 YR 5/6 Yellowish Brown	Loam	Fine Medium Granular	Very Friable	None	This horizon may qualify as a spodic horizon based upon chemistry. Many very fine through coarse roots.
Bw2	15-21	2.5 YR 5/6 Olive Brown	Fine Sandy Loam	Subangular blocky	Friable	Many Medium Distinct 2.5YR 5/6 Light Olive Brown and 7.5 YR 5/6 Strong Brown Redox	Common fine and very fine roots.
B C	21-32	2.5YR 5/4 Light Olive Brown	Loam	Medium Blocky	Friable	Many Medium Distinct 2.5YR 5/6 Light Olive Brown and 7.5 YR 5/6 Strong Brown Redox	Common fine and very fine roots.
Cd	32-47	2.5YR 5/4 Light Olive Brown	Loam *Loam	Prismatic	Firm	Many Course Distinct 2.5YR 5/6 Light Olive Brown and 7.5 YR 5/6 Strong Brown Redox	Some experts thought this horizon was finer than the horizons above.

COMMENTS: Textures were based upon a consensus of soil scientists who examined the pit. The range to depth to Limiting Factor for site evaluation purposes is 15-22 inches due to SHWT. The SHWT ranged from 15-22 inches within the pit. The Cd ranged from 31-37 inches within the pit. The Cd was very firm in some places.

(d) **Buffers**. A stormwater management system using buffers to control runoff must meet the design and sizing requirements described in Appendix F to this Chapter.

(e) **Innovative treatment measures**. The Department may, on a case-by-case basis, approve alternative treatment measures to those described in Subsections 4(C)(3)(a) through 4(C)(3)(d) above. Innovative treatment measures may be either proprietary or non-proprietary, and must provide at least as much pollutant removal as the treatment measures listed above and as much channel protection and temperature control, unless the Department determines that channel protection and/or temperature control are unneeded due to the nature of the resource. Any person proposing the use of an innovative treatment measure may be required to provide reports or studies, subject to Department review and approval, demonstrating the control efficiency of the measure. The use of an innovative treatment measure does not preclude the need to meet other required Stormwater Management Law standards.

(4) **Low impact development credit**. Low impact development strategies can reduce stormwater storage volume requirements through the use of non-structural stormwater management techniques that minimize impervious cover, thereby reducing both the size and cost of stormwater management structures. The use of low impact development strategies is optional and voluntary for all projects, but projects using this credit are eligible to reduce the portion of the project's impervious or developed acreage that must be treated.

(a) Projects incorporating low impact development strategies under this Section must be reviewed and approved by the Department on a case-by-case basis, and must:

(i) Protect as much undisturbed land as possible to maintain pre-development hydrology and allow rainfall infiltration;

(ii) Protect natural drainage systems such as wetlands, watercourses, ponds and vernal pools to the maximum extent practicable;

(iii) Minimize land disturbance including clearing and drainage to the extent practicable;

(iv) Minimize the decrease in the time of concentration from pre-construction to post-construction to the extent practicable;

(v) Minimize soil compaction to the extent practicable;

(vi) Utilize low-maintenance landscaping that encourages the retention and planting of native vegetation, and minimizes the use of lawns, fertilizers and pesticides;

(vii) Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces to the extent practicable;

(viii) Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas; and

(ix) Provide other source controls to prevent or minimize the use or exposure of pollutants at the site in order to prevent or minimize the release of those pollutants into stormwater runoff.