

c r o s s r o a d s v e n t u r e s l l c

DRAFT
Environmental Impact Statement

Appendix 12

Soil Test Results

The Belleayre Resort at Catskill Park

THE L A GROUP

40 LONG ALLEY, SARATOGA SPRINGS, NEW YORK 12866

TO: KEVIN FRANKE

FROM: ROGER J. CASE, SOIL SCIENTIST

DATE: October 7, 2002

RE: BELLEAYRE RESORT HIGH INTENSITY SOIL SURVEY –
FRIGID AND MESIC EQUIVALENTS

As per your request below is a table of the frigid soil units used in Delaware County soils mapping and their mesic equivalents previously used in the Ulster County Soil Survey that is going to be updated by NRCS.

BELLEAYRE RESORT LANDS APPROXIMATE FRIGID TO MESIC MAP UNIT CORRELLATION LEGEND

Frigid units Approximate mesic equivalent used in Ulster County Survey

EKB Elka silt loam = VAB Valois silt loam, 0 to 8 percent slopes

EKC Elka silt loam = VAC Valois silt loam, 8 to 15 percent slopes

HRF Halcott rock outcrop = ARF Arnot-Rock outcrop complex, >25 percent slopes

HVB Halcott- Vly complex = ARB Arnot-Oquaga complex, 0 to 8 percent slopes

HVD Halcott-Vly complex = ARD Arnot-Oquaga complex, 15 to 25 percent slopes

LEB Lewbeach silt loam = LAB Lackawanna silt loam, very stony, 0 to 8 percent slopes

LEC Lewbeach silt loam = LAC Lackawanna silt loam, very stony, 8 to 15 percent slopes

LED Lewbeach silt loam = LAD Lackawanna silt loam, very stony, 15 to 25 percent slopes

LEF Lewbeach silt loam = LAF Lackawanna silt loam, very stony, >25 percent slopes

OSB Onteora-Suny = LY Lyons-Atherton complex, very stony, 0 to 8 percent slopes

The TKB and TKC units do not change

TKB Tunkhannock very channery loam, 0 to 8 percent slopes

TKC Tunkhannock very channery loam, 8 to 15 percent slopes

VEB Vly-Elka complex = OVB Oquaga-Valois complex, 0 to 8 percent slopes

VEC Vly-Elka complex = OVC Oquaga-Valois complex, 8 to 15 percent slopes

VED Vly-Elka complex = OVD Oquaga-Valois complex, 15 to 25 percent slopes

VEF Vly-Elka complex = OVF Oquaga-Valois complex, >25 percent slopes

VHB Vly-Halcott complex = ORB Oquaga-Arnot complex, 0 to 8 percent slopes

VHC Vly-Halcott = ORC Oquaga-Arnot complex, 8 to 15 percent slopes

VHD Vly-Halcott = ORD Oquaga-Arnot complex, 15 to 25 percent slopes

VHF Vly-Halcott = ORF Oquaga-Arnot complex, >25 percent slopes

VYB Vly channery silt loam = OGB Oquaga channery silt loam, 0 to 8 percent slopes

VYC Vly channery silt loam = OGC Oquaga channery silt loam, 8 to 15 percent slopes

VYD Vly channery silt loam = OGD Oquaga channery silt loam, 15 to 25 percent slopes

WLB Willowemoc = WLB Wellsboro silt loam, 0 to 8 percent slopes

WLC Willowemoc = WLC Wellsboro silt loam, 8 to 15 percent slopes

Most of the soils named in this legend occur on both the Big Indian Plateau map and the Wildacres map. A few may occur on one map and not the other.



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Phone (315) 477-6504

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DATE: November 7, 2002

SUBJECT: Ulster County Soil Survey Report

TO: Roger Case, Consulting Soil Scientist
The LA Group
40 Long Alley
Saratoga Springs, New York 12866

RECEIVED
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The LA Group

This is a follow up to our conversation regarding the status of the published soil survey of Ulster County. As I indicated at that time, the existing soil survey was published in 1979, though the actual mapping was completed prior to 1973. During the time when this survey was being made, the importance of soil temperature regimes for soil classification, correlation, and interpretation was not fully understood and recognized. Consequently, the resulting soil survey reflects only soils described as having mesic temperature regimes. Since this survey was published we have studied and documented the occurrence of soils similar to those mapped at higher elevations in Ulster County that have lower temperature regimes, described as frigid. These frigid soils are recognized in more modern adjoining soil surveys such as Delaware County. When the Ulster County soil survey is updated, frigid soils similar to those mapped in Delaware County will be recognized in these areas as appropriate.

Please contact me if you have further questions.

Tyrone M. Goddard
NRCS State Soil Scientist

Cc: Edward Stein, Resource Soil Scientist, NRCS, Herkimer, NY



Delaware County Soil and Water Conservation District

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TO: Roger Case
Diversified Soil Services, Ltd.
PO Box 489
Claverack, NY 12513

FROM: Larry Day, Soil & Groundwater Specialist *Lamy*

DATE: August 28, 2002

RE: Soil mapping legend for Bellayre/Crossroads Ventures project

I have reviewed your letter of August 26, 2002, and the soil mapping legend it included, entitled "Crossroads Ventures Properties Soil Correlation Legend". In this legend you listed the soil series currently used in the soon-to-be-published NRCS soil survey of Delaware County, and the equivalent soil series used in the Ulster County soil survey report that was published in 1979.

I have not reviewed the actual soil mapping for this project, but the list of frigid soils chosen to replace their mesic equivalents appears appropriate and includes soils that are commonly mapped in elevations above 1750 ft. in Delaware County. I did notice a few minor exceptions, however.

The map unit *Onteora-Suny soils, very stony, 0 to 8 % slopes* includes the *Suny* series, which was not mapped in Delaware County. Instead, the *Norchip* series was mapped in our poorly and very poorly drained areas in frigid temperature regimes. Also, *Onteora* is considered to be somewhat poorly drained, while the soil listed as the Ulster Co. equivalent, *Lyons*, is actually poorly drained. I do not know of an equivalent frigid soil for the *Atherton* series. Finally, some of the surface textural phases are not exactly as mapped in Delaware County. For example, the *Willowemoc* series predominantly occurs as channery silt loam in Delaware Co., but is listed as silt loam in your mapping legend.

These apparent legend variations may have little practical significance. In special-purpose soil surveys it can be more important to map what is actually found in the area of study than to try and match existing mapping -- particularly if the mapping was performed at a different scale or with a mapping legend that could use updating. I do agree that it is appropriate to map frigid soils at elevations where the most recent scientific studies have determined that frigid soils occur.

THE L A GROUP

40 LONG ALLEY, SARATOGA SPRINGS, NEW YORK 12866

MEMO

TO: KEVIN FRANKE

FROM: ROGER J. CASE, SOIL SCIENTIST

DATE: OCTOBER 30, 2002

**RE: DEEP SOIL TEST PITS AND PERCOLATION TESTS AT
BELLEAYRE RESORT, CROSSROADS VENTURE PROPERTIES
SHANDAKEN AND MIDDLETOWN, NY**

These deep soil test pits observations were made September 3, 4 & 5, 2002.

There are three parcels involved with the project. There were no deep permeable soils found on the Big Indian Plateau. Each test pit had refusal at bedrock or impervious fragipan (hardpan). At the Belleayre Highlands site there was one successful deep percolation test. The remainder of the Belleayre Highlands near the Brisbane Mansion has hardpan or bedrock.

The Wildacres parcel had several successful deep percolation tests particularly along the north edge of the parcel. The interior of Wildacres site had impervious hardpan or bedrock.

One deep test pit was excavated at Highmount Estates in the Leach Farm parcel. The soil had rippable shale at 31 inches and became hard bedrock at 65 inches. A shallow percolation test had a rate of 38 minutes at 20 inches below the surface.

The following deep percolation test data was observed:

Test pit DP102: (Wildacres 9-04-02)

Oe horizon: 0 to 1 inches, black (10YR2/1) organic and silt loam duff layer

E horizon: 1 to 2 inches, light gray (10YR7/2) gravelly silt loam (discontinuous)

Bw1 horizon: 2 to 12 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flagstones.

Bw2 horizon: 12 to 30 inches, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones of varying sizes.

Bx horizon: 30 to 72 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones. There are no seeps and no mottles, the Bx horizon is very firm and essentially impervious.

Soil Series: Lewbeach

Test pit DP103: (Wildacres 9-04-02)

Oe horizon: 0 to 2 inches, black (10YR2/1) fibrous organic duff layer mixed in a near pavement of large flagstones and boulders.
Bw1 horizon: 2 to 44 inches, reddish brown (5YR 4/4) very channery silt loam with common mixed flagstones.
Bw2 horizon: 44 to 58 inches, reddish brown (5YR 5/4) very channery loam, slightly firm, with many flagstones of varying sizes.
2C horizon: 58 to 60+ inches, flagstones with cobbles and gravel in stratified layers.

There are no seeps and no mottles. Percolation rate @ 60 inches: <2:00 minutes

Soil Series: Elka o/ Tunkanock

Test pit DP104: (Wildacres 9-4-02)

Oe horizon: 0 to 1 inches, black (10YR2/1) mucky silt loam duff layer
Bw1 horizon: 1 to 6 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flagstones.
Bw2 horizon: 6 to 29 inches, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones of varying sizes.
Bx horizon: 29 to 72 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones.

There are no seeps and no mottles, the Bx horizon is very firm and essentially impervious.

Soil Series: Lewbeach

Test pit DP105: (Wildacres 9-4-02)

Oe horizon: 0 to 2 inches, black (10YR2/1) mucky silt loam duff layer
E horizon: 2 to 3 inches, light gray (10YR7/2) gravelly silt loam
Bw1 horizon: 3 to 10 inches, (5YR4/6) yellowish red channery silt loam with common small flagstones.
Bw2 horizon: 10 to 33 inches, firm, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones, common fine faint mottles in the lower part.
Bx horizon: 33 to 72 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones..

There are mottles @ 24 to 33 inches. The Bx horizon is very firm and essentially impervious

Percolation rate @
20 inches is: 5 minutes (5:00)

Soil Series: Willowemoc

Test pit DP107: (Wildacres 9-05-02)

Oe horizon: 0 to 10 inches, black (10YR2/1) fibrous organic duff layer mixed in a near pavement of large flagstones and boulders.

Bw1 horizon: 10 to 30 inches, reddish brown (5YR 4/4) very channery silt loam with common mixed flagstones.

Bw2 horizon: 30 to 49 inches, reddish brown (5YR 5/4) very channery loam, slightly firm, with many flagstones of varying sizes.

C horizon: 49 to 60+ inches, slightly firm, reddish brown (7.5YR 4/4) very channery silt loam, many flagstones and boulders.

There are no seeps and no mottles. Percolation rate @ 60 inches: 9:00 minutes

Soil Series: Elka

Test pit DP108: (Wildacres 9-05-02)

Oe horizon: 0 to 10 inches, black (10YR2/1) fibrous organic duff layer mixed in a near pavement of large flagstones and boulders.

Bw1 horizon: 10 to 34 inches, reddish brown (5YR 4/4) very channery silt loam with common mixed flagstones.

Bw2 horizon: 34 to 55 inches, reddish brown (5YR 5/4) very channery loam, slightly firm, with many flagstones of varying sizes.

C horizon: 55 to 60+ inches, reddish brown (7.5YR 4/4) very channery silt loam, many flagstones and mixed gravel.

There are no seeps and no mottles. Percolation rate @ 60 inches: 4:00 minutes

Soil Series: Elka

Test pit DP109: (Wildacres 9-04-02)

Oe horizon: 0 to 5 inches, black (10YR2/1) fibrous organic duff layer mixed in a near pavement of large flagstones and boulders.

Bw1 horizon: 5 to 33 inches, reddish brown (5YR 4/4) very channery silt loam with common mixed flagstones.

Bw2 horizon: 33 to 49 inches, reddish brown (5YR 5/4) very channery loam, few, fine, faint mottles in the lower part, firm, with many flagstones of varying sizes.

C horizon: 49 to 60+ inches, friable, reddish brown (7.5YR 4/4) very channery silt loam, many flagstones and boulders.

There are no seeps and few fine mottles. Percolation rate @ 60 inches: 4:40 minutes

Soil Series: Lewbeach o/ Elka

Test pit DP110: (Wildacres 9-4-02)

Oe horizon: 0 to 2 inches, black (10YR2/1) mucky silt loam duff layer
E horizon: 2 to 3 inches, light gray (10YR7/2) gravelly silt loam
Bw1 horizon: 3 to 10 inches, (5YR4/6) yellowish red channery silt loam with common small flagstones.
Bw2 horizon: 10 to 30 inches, firm, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones, common fine faint mottles in the lower part.
Bx horizon: 30 to 72 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones.

There are mottles @ 24 to 30 inches. The Bx horizon is very firm and essentially impervious

Soil Series: Willowemoc

Test pit DP111: (Highmount Estates 9-4-02)

Oe horizon: 0 to 5 inches, dark reddish brown (5YR 3/3) silt loam.
Bw1 horizon: 5 to 31 inches, reddish brown (5YR 4/4) very channery silt loam.
Cr horizon: 31 to 65 inches, rippable reddish brown (5YR 4/4) shale bedrock.
R horizon: 65 inches, hard red shale and slate bedrock.

The boundary condition is hard bedrock at 31 inches below the surface.
The percolation test was run at 20 inches below the surface.
The stabilized percolation rate: 38 minutes (38:00)
The soil type is Vly.

Test pit DP112: (Belleayre Highlands 9-04-02)

Oe horizon: 0 to 2 inches, black (10YR2/1) mucky silt loam duff layer
E horizon: 2 to 3 inches, light gray (10YR7/2) gravelly silt loam
Bw1 horizon: 3 to 10 inches, (5YR4/6) yellowish red channery silt loam with common small flagstones.
Bw2 horizon: 10 to 38 inches, reddish brown (5YR 4/4) very channery silt loam with common mixed flagstones.
Bw3 horizon: 38 to 60 inches, reddish brown (5YR 5/4) very channery loam, slightly firm, with many flagstones of varying sizes.
C horizon: 60 to 72+ inches, reddish brown (7.5YR 4/4) very channery silt loam, many flagstones and boulders.

There are no seeps and no mottles. The percolation test rate @ 72 inches is 4:00 minutes.

Soil Series: Elka

Test pit DP113: (Wildacres 9-4-02)

Oe horizon: 0 to 1 inches, black (10YR2/1) organic duff layer
Ap horizon: 1 to 5 inches, dark brown (7.5YR3/3) gravelly silt loam.
Bw1 horizon: 5 to 26 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flagstones.
Bx horizon: 26 to 72 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones. There is a discontinuous seam of gravel at 48 to 62 inches. The seam probably had reasonable permeability but was discontinuous within the pit and could be a reliable outlet for infiltration within the matrix of very firm hardpan.

There are no seeps and no mottles, the Bx horizon is very firm and essentially impervious.

Soil Series: Lewbeach

Test pit DP114: (Belleayre Highlands 9-4-02)

Ap horizon: 0 to 4 inches, dark brown (10YR3/2) channery silt loam.
Bw1 horizon: 4 to 12 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flag stones.
Bw2 horizon: 12 to 22 inches, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones of varying sizes.
R horizon: 22+ fractured sandstone and silt stone over hard bedrock.

There are no seeps and no mottles the bedrock is impervious

Soil Series: Vly

Test pit DP116: (Wildacres 9-03-02)

Oe horizon: 0 to 10 inches, black (10YR2/1) fibrous organic duff layer mixed in a near pavement of large flagstones and boulders.
Bw1 horizon: 10 to 30 inches, reddish brown (5YR 4/4) very channery silt loam with common mixed flagstones.
Bw2 horizon: 30 to 45 inches, reddish brown (5YR 5/4) very channery loam, slightly firm, with many flagstones of varying sizes.
C horizon: 45 to 60+ inches, slightly firm, reddish brown (7.5YR 4/4) very channery silt loam, many flagstones and boulders.

There are no seeps and no mottles. Percolation rate @ 60 inches: 8:00 minutes

Soil Series: Elka

Test pit DP117: (Big Indian Plateau 9-3-02)

Oe horizon: 0 to 1 inches, black (10YR2/1) organic duff layer
Ap horizon: 1 to 6 inches, dark brown (7.5YR3/3) gravelly silt loam.
Bw1 horizon: 6 to 45 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flagstones.
Bx horizon: 45 to 72 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones.

There are no seeps and no mottles, the Bx horizon is very firm and essentially impervious. A percolation test was started at this location at 60 inches below the surface. The percolation rate was <.5 inches in two hours.

Soil Series: Lewbeach

Test pit DP118: (Big Indian Plateau 9-3-02)

Ap horizon: 0 to 4 inches, dark brown (10YR3/2) channery silt loam.
Bw1 horizon: 4 to 12 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flagstones.
Bw2 horizon: 12 to 32 inches, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones of varying sizes.
R1 horizon: 32 to 65 inches, fractured sandstone and silt stone (rippable).
R2 horizon: 65+ hard bedrock.

There are no seeps and no mottles the bedrock is impervious

Soil Series: Vly

Alternate Test pit
#DP118: (Big Indian Plateau 9-03-02)

Ap horizon: 0 to 4 inches, dark brown (10YR3/2) channery silt loam.
Bw horizon: 4 to 35 inches, (7.5YR6/8) reddish yellow very channery silt loam with fractured bedrock and large flagstones.
R horizon: 35 inches, consolidated hard bedrock.

There are no seeps and no mottles the bedrock is impervious

Soil Series: Vly

Test pit DP119: (Big Indian Plateau 9-3-02)

Oe horizon: 0 to 1 inches, black (10YR2/1) organic duff layer
Ap horizon: 1 to 6 inches, dark brown (7.5YR3/3) gravelly silt loam.
Bw1 horizon: 6 to 29 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flagstones.
Bx horizon: 29 to 72 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones.

There are no seeps and no mottles, the Bx horizon is very firm and essentially impervious. A percolation test was started at this location at 60 inches below the surface. The percolation rate was <.2 inches in two hours.

The percolation rate @ 20 inches below the surface was 8:20 (8 minutes:20 seconds).

Soil Series: Lewbeach

Test pit DP120: (Big Indian Plateau 9-3-02) (This pit was identical to DP119)

Oe horizon: 0 to 1 inches, black (10YR2/1) organic duff layer
Ap horizon: 1 to 6 inches, dark brown (7.5YR3/3) gravelly silt loam.
Bw1 horizon: 6 to 29 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flagstones.
Bx horizon: 29 to 72 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones.

There are no seeps and no mottles, the Bx horizon is very firm and essentially impervious. A percolation test was started at this location at 60 inches below the surface. The percolation rate was <.2 inches in two hours.

Soil Series: Lewbeach

Test pit DP121: (Big Indian Plateau 9-3-02)

Ap horizon: 0 to 5 inches, dark brown (10YR3/2) channery silt loam.
Bw1 horizon: 5 to 12 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flagstones.
Bw2 horizon: 12 to 24 inches, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones of varying sizes.
R horizon: 24+ inches, hard bedrock.

There are no seeps and no mottles the bedrock is impervious

Soil Series: Vly

Test pit DP122: (Big Indian Plateau 9-3-02)

Oe horizon: 0 to 1 inches, black (10YR2/1) organic duff layer
Ap horizon: 1 to 6 inches, dark brown (7.5YR3/3) gravelly silt loam.
Bw1 horizon: 6 to 30 inches, reddish yellow (7.5YR6/8) channery silt loam with common small flagstones.
Bx horizon: 30 to 65 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones.
Cd horizon: 65 to 100 inches, extremely firm, with large flagstones, may be approaching bedrock.

There are no seeps and no mottles, the Bx horizon is very firm and essentially impervious. A percolation test was started at this location at 60 inches below the surface. The percolation rate was <.3 inches in two hours.

Soil Series: Lewbeach

Test pit DP123: (Big Indian Plateau 9-3-02)

Oe horizon: 0 to 1 inches, black (10YR2/1) organic duff layer
Ap horizon: 1 to 6 inches, dark reddish brown (5YR3/3) gravelly silt loam.
Bw1 horizon: 6 to 29 inches, reddish yellow (5YR6/8) very channery silt loam with common small flagstones.
Bx horizon: 29 to 65 inches, very firm, reddish brown (5YR 4/4) channery silty clay loam, common small flagstones.
R horizon: 65 inches, hard bedrock.

There are no seeps and no mottles, the Bx horizon is very firm and essentially impervious.

Soil Series: Lewbeach

Test pit DP124: (Big Indian Plateau 9-3-02)

Ap horizon: 0 to 4 inches, dark brown (10YR3/2) channery silt loam.
Bw1 horizon: 4 to 12 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flagstones.
Bw2 horizon: 12 to 35 inches, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones of varying sizes.
R1 horizon: 35 to 60 inches, fractured sandstone and silt stone (rippable).
R2 horizon: 60 inches+ hard bedrock.

There are no seeps and no mottles the bedrock is impervious
Percolation rate @ 20 inches: 7:10 (7 minutes :10 seconds)

Soil Series: Vly

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THE L A GROUP

40 LONG ALLEY, SARATOGA SPRINGS, NEW YORK 12866

TO: KEVIN FRANKE

FROM: ROGER J. CASE, SOIL SCIENTIST

DECEMBER 11, 2000

RE: DEEP SOIL TEST PITS AND PERCOLATION TESTS @
BELLAYRE CROSSROADS VENTURE PROPERTIES
HIGH MOUNT/PINE HILL, NY

These deep soil test pits observations were made November 2000. Present at the time were Roger Case, soil scientist, cpss, cpac, LA Group and representatives from the New York City DEP.

There are three parcels involved with the project. The deep test pits are typically identified with the prefix representing the parcel in which they are located. WA prefix is for pits at Wild Acres. The prefix R is for pits at the Ridge parcel and T represents pits described at the Turner Mansion parcel.

The following test pit observations were from Wild Acres.

Test pit WA119:

Oe horizon: 0 to 2 inches, black (10YR2/1) mucky silt loam duff layer

E horizon: 2 to 3 inches, light gray (10YR7/2) gravelly silt loam

Bw1 horizon: 3 to 10 inches, (5YR4/6) yellowish red channery* silt loam with common small flagstones.

Bw2 horizon: 10 to 16 inches, brown (7.5YR 4/4) very channery silt loam with common flagstones of varying sizes.

Bw3 horizon: 16 to 38 inches, firm, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones.

Bx horizon**: 38 to 72 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones.

R horizon: 72+ fractured sandstone and silt stone over hard bedrock.

*channers are elongated thin gravel fragments derived from shale and silt and sandstone, as opposed to typical gravel which is rounded or at least irregularly shaped.

**The Bx horizon designates the beginning of the fragipan.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. A deep "perc" test exceeded one hour.

Percolation rate @ 26 inches is: 5 minutes 35 seconds (5:35)

Soil Series: Lewbeach

Test pit WA120:

Oe horizon: 0 to 1 inches, black (10YR2/1) mucky silt loam duff layer
E horizon: 1 to 2 inches, light gray (10YR7/2) gravelly silt loam (discontinuous)
Bw1 horizon: 2 to 12 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flagstones.
Bw2 horizon: 12 to 24 inches, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones of varying sizes.
Bx horizon: 24 to 54 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones.
R horizon: 54+ fractured sandstone and silt stone over hard bedrock.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious.

Percolation rate @ 22 inches is: 7 minutes 45 seconds (7:45)

Soil Series: Lewbeach

Test pit WA122:

Ap horizon: 0 to 5 inches, dark brown (10YR3/3) very channery silt loam, with common flagstones and boulders.
Bw1 horizon: 5 to 19 inches, brown (7.5YR4/4) very channery silt loam with common flagstones.
Bw2 horizon: 19 to 34 inches, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones of varying sizes.
Bx horizon: 34 to 58 inches, very firm, brown (7.5YR 4/4) very channery silt loam, many flagstones and boulders.
Cd horizon: 58 to 84 inches, very firm layers of sand and gravel.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious.

Percolation rate @ 18 inches is: 9 minutes 30 seconds (9:30)

Soil Series: Lewbeach

Test pit WA Pond 3:

Oe horizon: 0 to 4 inches, black (10YR2/1) mucky silt loam duff layer
E horizon: 4 to 6 inches, light gray (10YR7/2) gravelly silt loam
Bw1 horizon: 6 to 16 inches, (7.5YR 6/8) reddish yellowish very channery fine sandy loam with common small boulders.
Bw2 horizon: 16 to 26 inches, yellowish brown (10YR 5/4) very channery fine sandy loam with some small boulders.
Bx horizon: 26 to 42 inches, very firm, grayish brown (2.5Y 5/2) very bouldery loam
Cd horizon: 42 to 86+ inches, very firm, brown (2.5Y 5/2) very channery loam.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. This location was investigated as a future location for pond construction, no percolation test was run. These impervious hardpan soils should make successful ponds.
Soil Series: Lewbeach

Test pit WA117001:

Oe horizon: 0 to 2 inches, black (10YR2/1) mucky silt loam duff layer
Bw1 horizon: 2 to 10 inches, (10YR 6/8) brownish yellowish channery loam.
Bw2 horizon: 10 to 24 inches, brown (7.5YR 6/4) very channery loam.
Bx horizon: 24 to 48 inches, very firm, brown (7.5YR 4/4) very channery silt loam with a few small boulders.
C horizon: 48 to 84 inches, firm, brown (7.5YR 6/4) very gravelly sandy loam.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. This test pit was excavated to confirm soil mapping. The test pit confirms the map unit for Lewbeach soils which are deep, well drained soils formed in coarse textured glacial till soils. This particular area of Lewbeach is not quite a red as typical Lewbeach soils.

Test pit WA117:

Ap horizon: 0 to 7 inches, dark brown (10YR3/3) silt loam, very stony
Bw1 horizon: 7 to 16 inches, yellowish brown (10YR3/6) very gravelly silt loam.
Bw2 horizon: 16 to 28 inches, brown (7.5YR 5/4) very gravelly silt loam
Bx horizon: 28 to 52 inches, very firm, reddish brown (5YR 5/3) very channery silt loam with many mixed flagstones.
C horizon: 52 to 84 inches, very firm, very flaggy silt loam.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. No percolation test was run, this area was investigated as a proposed pond site and should be successful.

Soil Series: Lewbeach

Test pit WA117002:

Oe horizon: 0 to 1 inches, black (10YR2/1) mucky silt loam duff layer
E horizon: 1 to 2 inches, light gray (10YR7/2) gravelly silt loam (discontinuous)
Bw1 horizon: 2 to 12 inches, (7.5YR6/8) reddish yellow channery silt loam with common small flag stones.
Bw2 horizon: 12 to 24 inches, dark yellowish brown (10YR 4/4) very channery silt loam with many flagstones of varying sizes.

BC horizon: 24 to 38 inches, firm, brown (7.5YR 4/4) very channery silt loam, many flagstones.
R horizon: 38+ fractured sandstone and silt stone over hard bedrock.

The depth to bedrock varied in the pit from 38 inches at one end to 72 inches at the other end. There are no seeps and no mottles, however there is a very firm Bx horizon at the deeper end of the pit and it is essentially impervious.
Soil Series: Vly (slightly brown phase)

Test pit #WA116:

This test pit was excavated in the lawn, west of the existing motel on the property. The soil consists of old stable fill excavated from the hillside behind the motel.

Ap horizon: 0 to 6 inches, dark reddish brown (5YR 3/2) silt loam.
C horizon: 6 to 84 inches, reddish brown (5YR 5/4) very gravelly/channery silt loam.

This area is intended for construction. No percolation tests were run. There were no seeps or mottles.
Udorthents, smoothed

Test pit WA117003:

Oe horizon: 0 to 25 inches, black (10YR2/1) fibrous organic duff layer mixed in a near pavement of large flagstones and boulders.
Bw1 horizon: 25 to 41 inches, reddish brown (5YR 4/4) very channery silt loam with common mixed flagstones.
Bw2 horizon: 41 to 60 inches, reddish brown (5YR 5/4) very channery loam, slightly firm, with many flagstones of varying sizes.
C horizon: 60 to 72 inches, slightly firm, reddish brown (7.5YR 4/4) very channery silt loam, many flagstones and boulders.

There are no seeps and no mottles. No perc test was run.
Soil Series: Elka

Test pit WA117004:

Ap horizon: 0 to 9 inches, dark brown (10YR3/3) channery silt loam.
Bw1 horizon: 9 to 19 inches, reddish brown (5YR 4/6) channery loam.
Bw2 horizon: 19 to 35 inches, reddish brown (7.5YR 4/3) very channery silt loam.
Bx horizon: 35 to 84 inches, very firm, light reddish brown (5YR 6/3) very channery silt loam with thick beds of flag stone in the lower part.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. This test pit was excavated to confirm soil mapping. The test pit confirms

the map unit for Lewbeach soils which are deep, well drained soils formed in coarse textured glacial till soils.

Test pit WA115:

Oe horizon: 0 to 1 inches, black (10YR2/1) fibrous organic duff layer
A horizon: 1 to 6 inches, dark grayish brown (10YR3/2) gravelly silt loam
Bw1 horizon: 6 to 9 inches, dark brown (10YR 3/3) channery silt loam
Bw2 horizon: 9 to 16 inches, yellowish brown (10YR 5/6) very channery silt loam with many flagstones of varying sizes.
R horizon: 16+ fractured sandstone and silt stone over hard bedrock.

There are no seeps and no mottles. This is an area confirmed as Halcott soils, however there is not the extensive areas of Halcott first predicted.

The following test pits and percolation test results are from the Ridge parcel.

Test pit #R118001:

Ap horizon: 0 to 2 inches, dark reddish brown (5YR 3/2) channery silt loam.
Bw1 horizon: 2 to 11 inches, reddish brown(5YR 4/4) channery loam.
Bw2 horizon: 11 to 16 inches, reddish brown (5YR 5/3) very channery silt loam.
Bx horizon: 16 to 84 inches, very firm, light reddish brown (5YR 6/3) very channery silt loam with thick beds of flag stone in the lower part.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. The percolation test was run at 18 inches below the surface.

The stabilized percolation rate is: 27 minutes (27:00)

The soil type is Lewbeach.

Test pit #R118002:

Oe horizon: 0 to 2 inches, black (5YR 2/1) fibrous duff layer.
Bw1 horizon: 2 to 8 inches, reddish brown(5YR 4/6) channery loam.
Bw2 horizon: 8 to 16 inches, reddish brown (5YR 4/6) channery silt loam.
Bw3 horizon: 16 to 26 inches, reddish brown (5YR 5/3) very channery silt loam.
Bx horizon: 26 to 90 inches, very firm, light reddish brown (5YR 6/3) very channery silt loam with thick beds of flag stone in the lower part.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. The percolation test was run at 18 inches below the surface.

The stabilized percolation rate is: 15 minutes (15:00)

The soil type is Lewbeach.

Test pit #R118003:

Oe horizon: 0 to 1 inches, black (5YR 2/1) fibrous duff layer.

Bw1 horizon: 1 to 12 inches, dark yellowish brown (10YR 4/4) channery loam.

Bw2 horizon: 12 to 17 inches, light yellowish brown (10YR 6/4) channery silt loam.

BC horizon: 17 to 27 inches, light yellowish brown (10YR 6/4) very channery fine sandy loam with some small flagstones.

C horizon: 27 to 36 inches, firm, pale brown (10YR 6/3) very channery silt loam, with common fine faint dark yellowish brown (10YR 4/6) mottles.

R horizon: 36 inches, hard sand stone bedrock.

The boundary condition is perched seasonal high water table at 27 inches below the surface. The C horizon is firm and essentially impervious. The percolation test was run at 18 inches below the surface.

The stabilized percolation rate is: 12 minutes (12:00)

The soil type is Vly.

Test pit R118004:

Oe horizon: 0 to 2 inches, black (10YR2/1) fibrous organic duff layer

E horizon: 2 to 4 inches, gray (5YR 6/2) fine sand

Bw horizon: 4 to 16 inches, reddish yellow (7.5YR 6/8) channery silt loam

R horizon: 16+ fractured sandstone and silt stone over hard bedrock.

There are no seeps and no mottles. This is an area proposed for a pond. Typically, deeper soils are better suited to pond construction.

The soil type is Halcott rock outcrop.

Test pit R118005:

Oe horizon: 0 to 2 inches, black (10YR2/1) fibrous organic duff layer

E horizon: 2 to 4 inches, gray (5YR 6/2) fine sand

Bw horizon: 4 to 18 inches, reddish yellow (7.5YR 6/8) channery silt loam

R horizon: 18+ fractured sandstone and silt stone over hard bedrock.

There are no seeps and no mottles. This is an area proposed for a pond. Typically, deeper soils are better suited to pond construction.

The soil type is Halcott rock outcrop.

Test pit R118006:

Oe horizon: 0 to 2 inches, black (10YR2/1) fibrous organic duff layer
E horizon: 2 to 4 inches, gray (5YR 6/2) fine sand
Bw horizon: 4 to 12 inches, reddish yellow (7.5YR 6/8) channery silt loam
R horizon: 12+ fractured sandstone and silt stone over hard bedrock.

There are no seeps and no mottles. This is an area proposed for a hotel construction.
The soil type is Halcott rock outcrop.

Test pit R118007:

Oe horizon: 0 to 2 inches, black (10YR2/1) fibrous organic duff layer
E horizon: 2 to 7 inches, gray (5YR 6/2) fine sand
Bw1 horizon: 7 to 16 inches, yellowish brown (10YR 4/6) channery silt loam
Bw2 horizon: 16 to 27 inches, yellowish brown (10YR 4/4) very channery silt loam.
Bx horizon: 27 to 90 inches, very firm, light reddish brown (5YR 6/3) very channery silt loam with thick beds of flag stone in the lower part.

There are no seeps and no mottles. This is an area proposed for a pond. Typically, deeper soils are better suited to pond construction.
The soil type is Lewbeach (slightly brown phase).

Test pit R118008:

Oe horizon: 0 to 3 inches, black (10YR2/1) fibrous organic duff layer
E horizon: 3 to 5 inches, gray (5YR 6/2) fine sand
Bw1 horizon: 5 to 14 inches, yellowish brown (10YR 4/6) channery silt loam
Bw2 horizon: 14 to 53 inches, ***rubble***, rubble consists of massive piles of flagstones and boulders with large voids and spaces too large to fill with soil material. Typically rubble occurs at the base of steep bedrock ledges.

There are no seeps and no mottles. No percolation test was performed. The area is proposed for hotel construction.
The soil type is Lewbeach, extremely rocky

Test pit R118009:

Oe horizon: 0 to 2 inches, black (10YR2/1) fibrous organic duff layer
E horizon: 2 to 4 inches, gray (5YR 6/2) fine sand
Bw1 horizon: 4 to 23 inches, yellowish brown (10YR 4/6) channery silt loam

Bw2 horizon: 23 to 60 inches, rubble, mostly flagstones and boulders approaching bedrock ledge near the bottom of the test pit.

There are no seeps and no mottles. No percolation test was performed. The area is proposed for hotel construction.

The soil type is Lewbeach, extremely rocky

Test pit #R1180010:

Oe horizon: 0 to 2 inches, black (5YR 2/1) fibrous duff layer.

Bw1 horizon: 2 to 10 inches, reddish brown (5YR 4/4) channery loam.

Bw2 horizon: 10 to 24 inches, reddish brown (5YR 4/4) very channery, very flaggy silt loam.

R horizon: 24 inches, hard sand stone bedrock.

The boundary condition is hard bedrock at 24 inches below the surface.

The percolation test was run at 18 inches below the surface.

The stabilized percolation rate is: 5 minutes 10 seconds (5:10)

The soil type is Vly.

Test pit #R1180011:

Oe horizon: 0 to 2 inches, black (5YR 2/1) fibrous duff layer.

Bw1 horizon: 2 to 8 inches, reddish brown(5YR 4/6) channery loam.

Bw2 horizon: 8 to 23 inches, reddish brown (7.5YR 5/6) channery silt loam.

Bx horizon: 23 to 90 inches, very firm, light reddish brown (5YR 6/3) very channery silt loam with thick beds of flag stone in the lower part.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. The percolation test was run at 22 inches below the surface.

The stabilized percolation rate is: 10 minutes 15 seconds (10:15)

The soil type is Lewbeach.

The following test pits and percolation test results are from the Turner Mansion parcel.

Test pit #T119001:

Ap horizon: 0 to 6 inches, dark grayish brown (10YR 3/2) silt loam.

Bw1 horizon: 6 to 15 inches, brown (7.5YR 5/4) channery silt loam.

Bw2 horizon: 15 to 29 inches, brown (7.5YR 5/4) very channery silt loam.

Bx horizon: 29 to 63 inches, very firm, light reddish brown (5YR 6/3) very channery silt loam with thick beds of flag stone in the lower part.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. The percolation test was run at 20 inches below the surface.

The stabilized percolation rate is: 21 minutes 45 seconds (21:45)

The soil type is Lewbeach.

Test pit #T119002:

Ap horizon: 0 to 6 inches, dark grayish brown (10YR 3/2) silt loam.

Bw1 horizon: 6 to 21 inches, reddish brown (7.5YR 5/6) channery silt loam.

Bw2 horizon: 21 to 32 inches, reddish brown (7.5YR 4/4) channery silt loam.

C horizon: 32 to 36 inches, very firm light brownish gray (10YR 6/2) channery silt loam.

R horizon: 36 inches, hard sand stone bedrock.

The boundary condition is hard bedrock at 36 inches below the surface.

The percolation test was run at 18 inches below the surface.

The stabilized percolation rate is: 14 minutes 2 seconds (14:02)

The soil type is Vly.

Test pit #T119003:

Ap horizon: 0 to 5 inches, dark grayish brown (10YR 3/2) silt loam.

Bw1 horizon: 5 to 28 inches, brown (7.5YR 5/4) channery silt loam.

Bw2 horizon: 28 to 40 inches, pale brown (10YR 6/3) very channery silt loam, with few fine faint yellowish brown (10YR 4/6) mottles.

Bx horizon: 40 to 61 inches, very firm, light brownish gray (10YR 6/2) very channery silt loam with flagstones in the lower part.

The boundary condition is perched seasonal high water table, indicated by mottling at 28 inches below the surface. The percolation test was run at 16 inches below the surface.

The stabilized percolation rate is: 24 minutes 30 seconds (24:30)

The soil type is Willowemoc.

Test pit #T119004:

Ap horizon: 0 to 11 inches, grayish brown (10YR 4/2) silt loam.

Bw1 horizon: 11 to 28 inches, reddish brown (5YR 5/4) channery silt loam.

Bx horizon: 28 to 42 inches, very firm, light brownish gray (10YR 6/2) very channery silt loam with medium, faint yellowish brown (10YR 5/6) mottles, flagstones in the lower part.

The boundary condition is perched seasonal high water table, indicated by mottling at 28 inches below the surface. The percolation test was run at 16 inches below the surface. (A percolation test at 30 inches was in excess of one hour).

The stabilized percolation rate is: 13 minutes 10 seconds (13:10)
The soil type is Willowemoc.

Test pit #T119005:

Ap horizon: 0 to 1 inches, dark grayish brown (10YR 3/2) silt loam.
Bw1 horizon: 1 to 25 inches, brown (5YR 4/4) channery silt loam.
Bw2 horizon: 25 to 36 inches, pale brown (5YR 5/4) very channery silt loam
Bx horizon: 36 to 50 inches, very firm, light brownish gray (5YR 6/3) very channery silt loam with flagstones in the lower part.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. The percolation test was run at 20 inches below the surface.
The stabilized percolation rate is: 17 minutes 30 seconds (17:30)
The soil type is Lewbeach.

Test pit #T119006:

Ap horizon: 0 to 3 inches, dark grayish brown (10YR 3/2) silt loam.
Bw1 horizon: 3 to 14 inches, strong brown (5YR 5/8) channery silt loam.
Bw2 horizon: 14 to 27 inches, brown (7.5YR 5/6) very channery silt loam
Bx horizon: 27 to 48 inches, very firm, light brownish gray (5YR 6/3) very channery silt loam with flagstones in the lower part.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. The percolation test was run at 18 inches below the surface.
The stabilized percolation rate is: 10 minutes 00 seconds (10:00)
The soil type is Lewbeach.

Test pit R119007:

Oe horizon: 0 to 2 inches, black (10YR2/1) fibrous organic duff layer
Bw horizon: 2 to 18 inches, strong brown (7.5YR 5/6) silt loam
BC horizon: 18 to 22 inches, reddish yellow (7.5YR 6/8) channery silt loam with fractured sandstone and silt stone over hard bedrock.
R horizon: 22+ hard bedrock.

The soil type is Halcott rock outcrop.

Test pit #T119008:

Ap horizon: 0 to 6 inches, dark grayish brown (10YR 3/2) silt loam.
Bw1 horizon: 6 to 17 inches, strong brown (5YR 5/8) silt loam.

Bw2 horizon: 17 to 20 inches, brown (7.5YR 5/6) silt loam
Bt1 horizon: 20 to 32 inches, firm, light brown(7.5YR 6/4)silty clay loam.
Bt2 horizon: 32 to 44 inches, very firm, pinkish gray (7.5YR 6/2) silty clay loam.
BC horizon: 44 to 72 inches, very firm, pinkish gray (7.5YR 6/2) silt loam.

There are no seeps and no mottles, however the Bx horizon is very firm and essentially impervious. The percolation test was run at 18 inches below the surface.
The stabilized percolation rate is: 20 minutes 00 seconds (20:00)
The soil type is Lewbeach.

Test pit R119009:

Oe horizon: 0 to 4 inches, black (10YR2/1) fibrous organic duff layer
Bw horizon: 4 to 20 inches, strong brown (7.5YR 5/6) silt loam
BC horizon: 20 to 24 inches, reddish yellow (7.5YR 6/8) channery silt loam with fractured sandstone and silt stone over hard bedrock.
R horizon: 24+ hard bedrock.

The soil type is Vly rock outcrop.

SOIL & MATERIAL TESTING, INC.
57 SOUTH MAIN STREET
CASTLETON, NEW YORK 12033

LETTER OF TRANSMITTAL

Date: December 13,2000

SMT JbNo.82890

TO: Attn: Holly Elmer
The LA Group
40 Long Alley
Saratoga Springs, NY 12866

RE: Lab Testing

We are sending X herewith _____ under separate cover 8 set(s) of prints

Concrete Strength Results		Gradation w/ Hydrometer		Sieve Analysis Test Data
Concrete Mix Design		Atterberg Limits Test Data		Soundness Test Data
Concrete Inspection Data		Organic Content Test Data		LA Abrasion Test Data
Bituminous Concrete Insp. Data		Permeability Test Data		CBR Test Data
Steel Inspection Data		Laboratory Compaction Data		Direct Shear Test Data
Triaxial Compression Test Data		Field Compaction Control Data		Interface Shear Test Data
Caisson Reports		Classification Test Data		Daily Job Report
Boring Logs		Consolidation Test Data	x	Other

for the above referenced job.

If you have any questions, please feel free to contact us.

Sincerely,

SOIL & MATERIAL TESTING, INC.



Jodi Waldorf
Vice President Technical Services

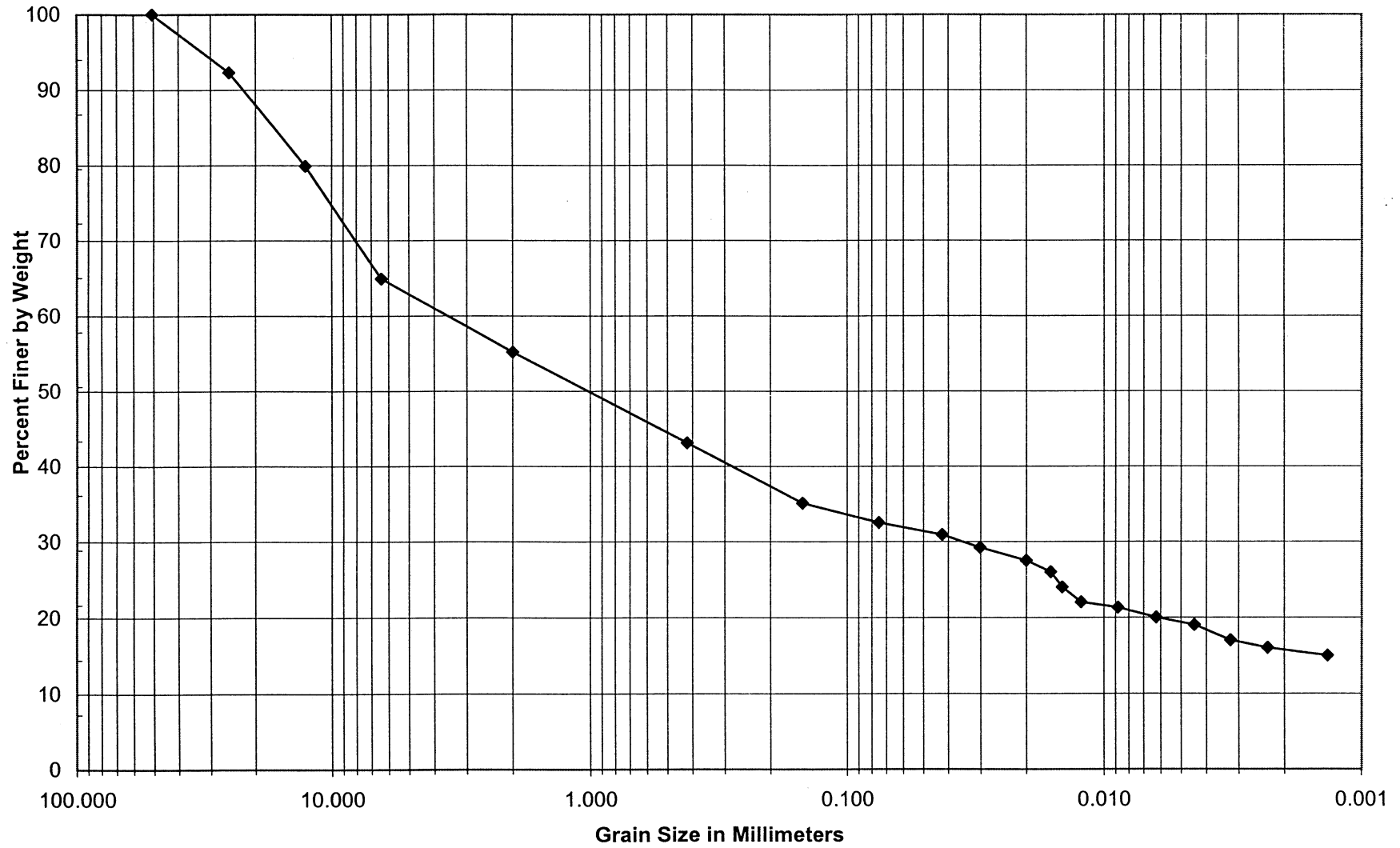
SMT is inspected by the Concrete and Cement Reference Laboratory (CCRL Federal Program; since 1974)
SMT is inspected by the AASHTO Material Reference Laboratory (AMRL Federal Program; since 1994)

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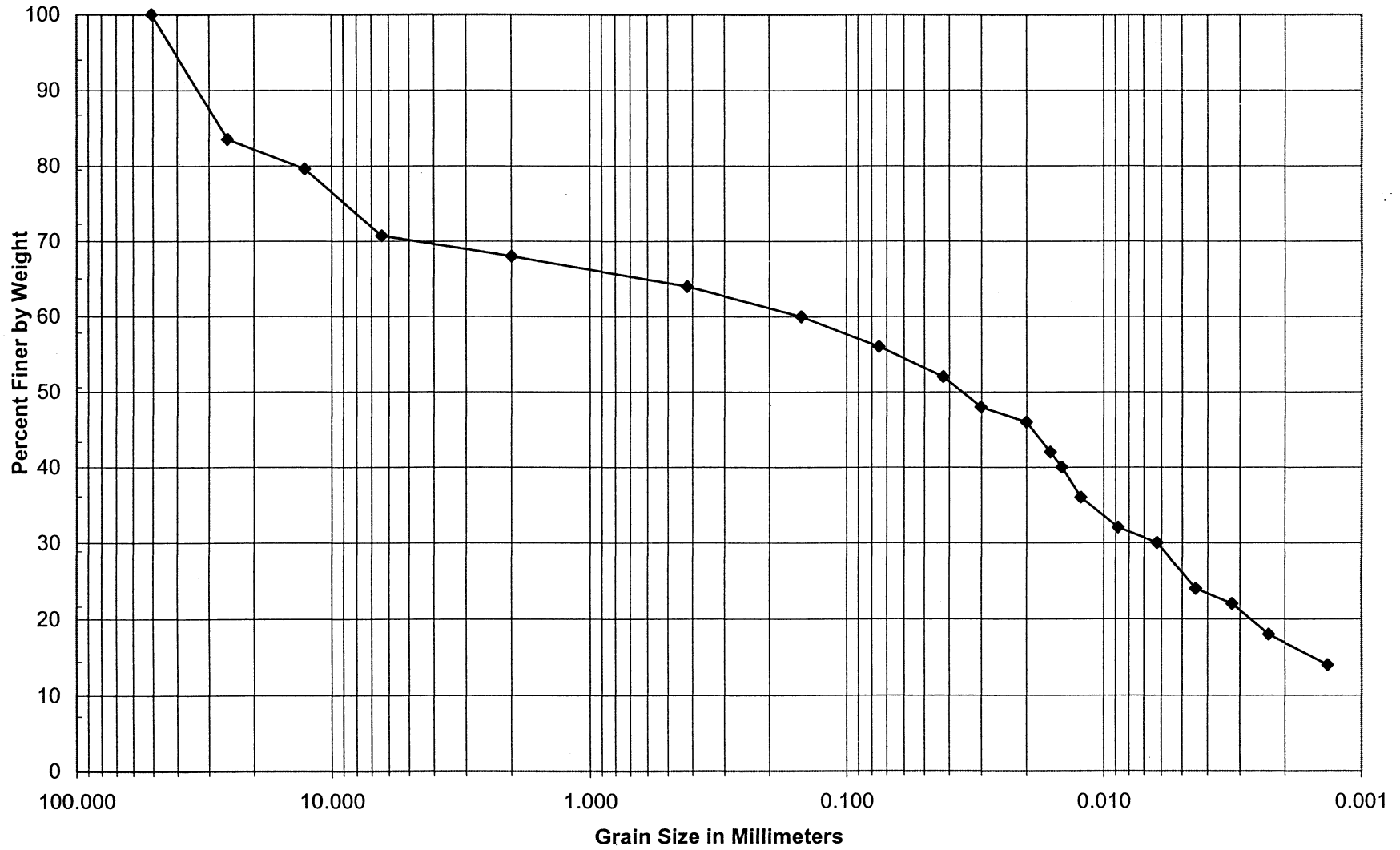
Albany Area (518) 732-7205
Highland (914) 691-4922

Kingston (914) 336-4471
Pittsfield (413) 499-5338

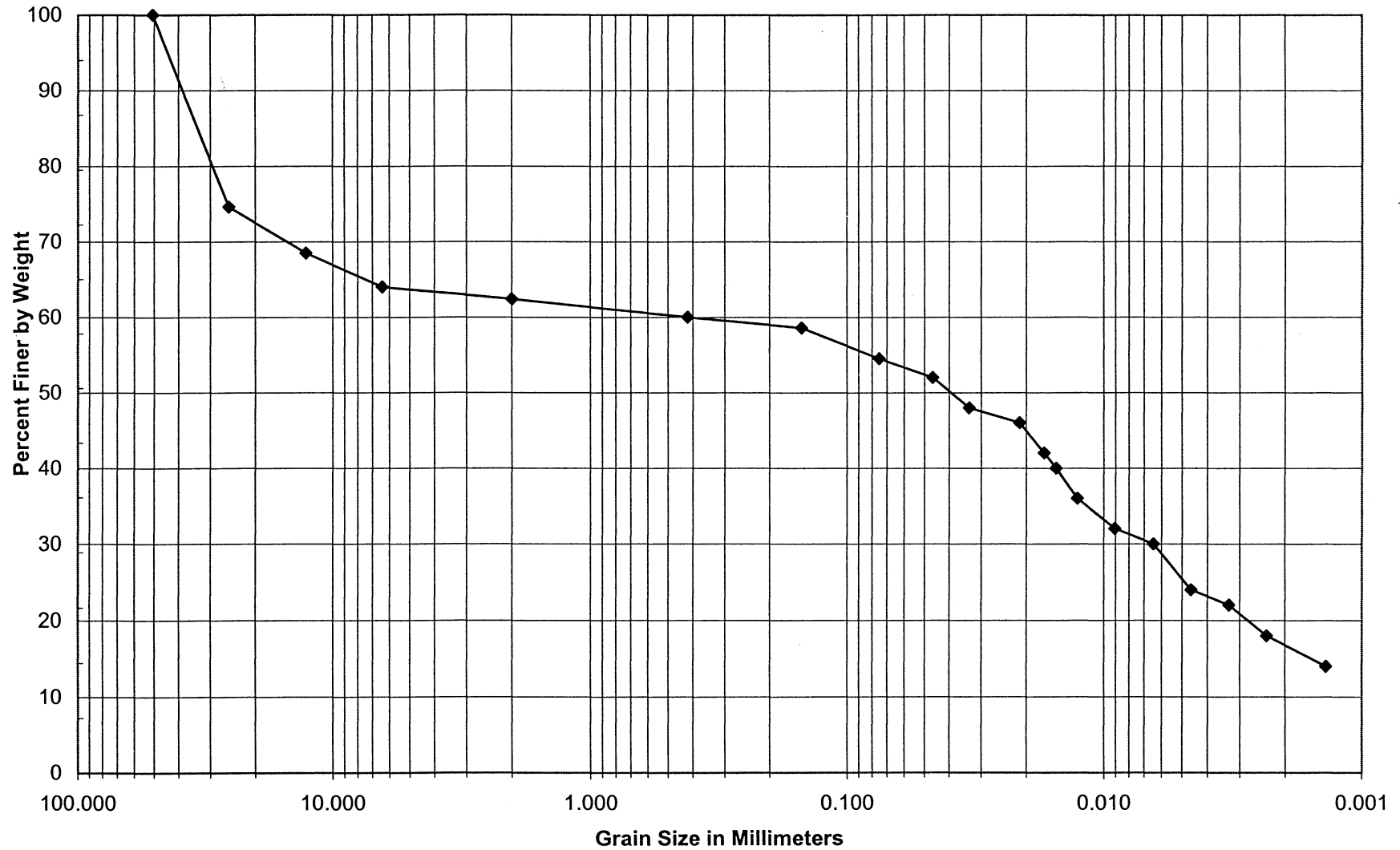
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Crossroads Ventures Sample#: T119008 SMT#: 82890



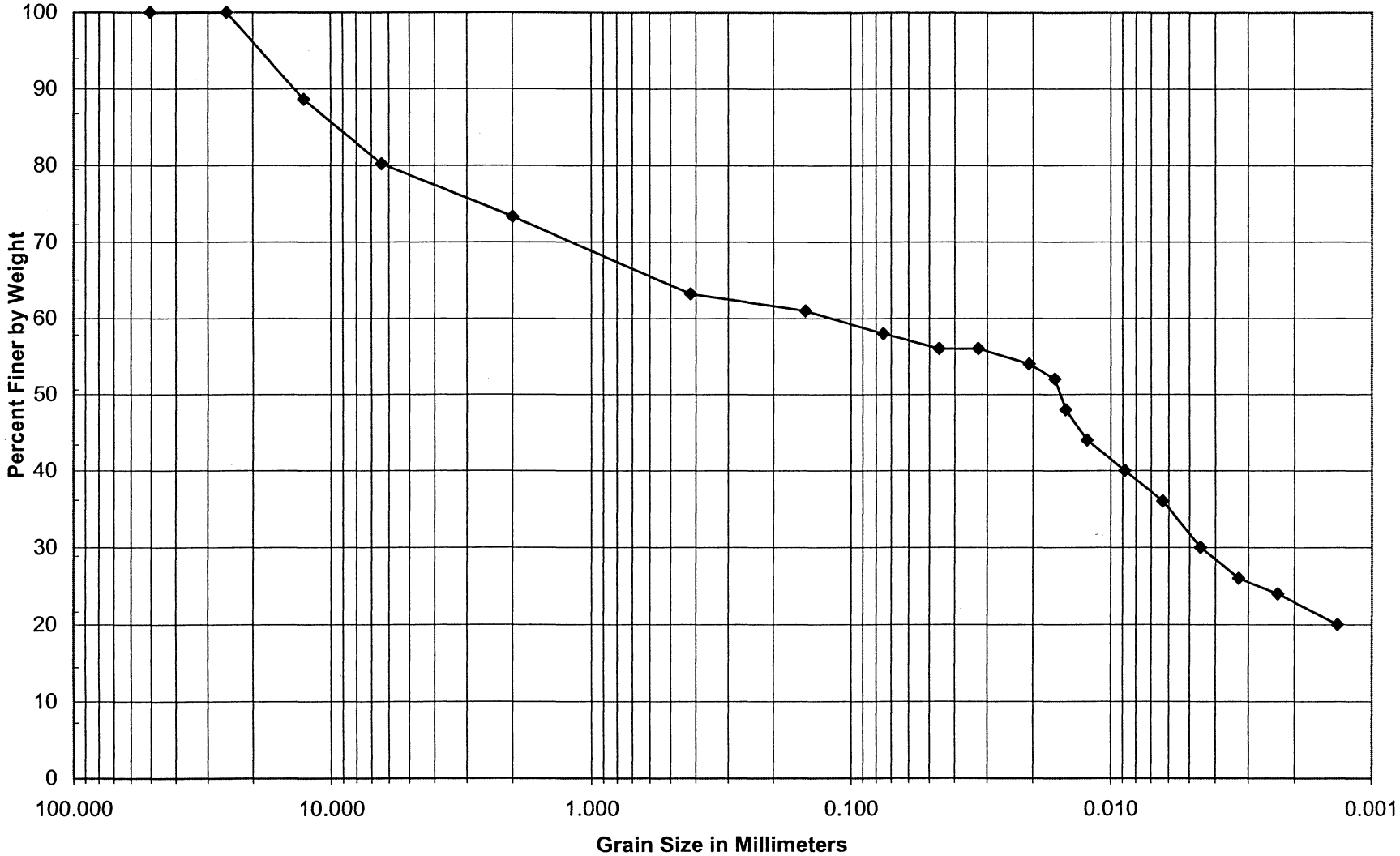
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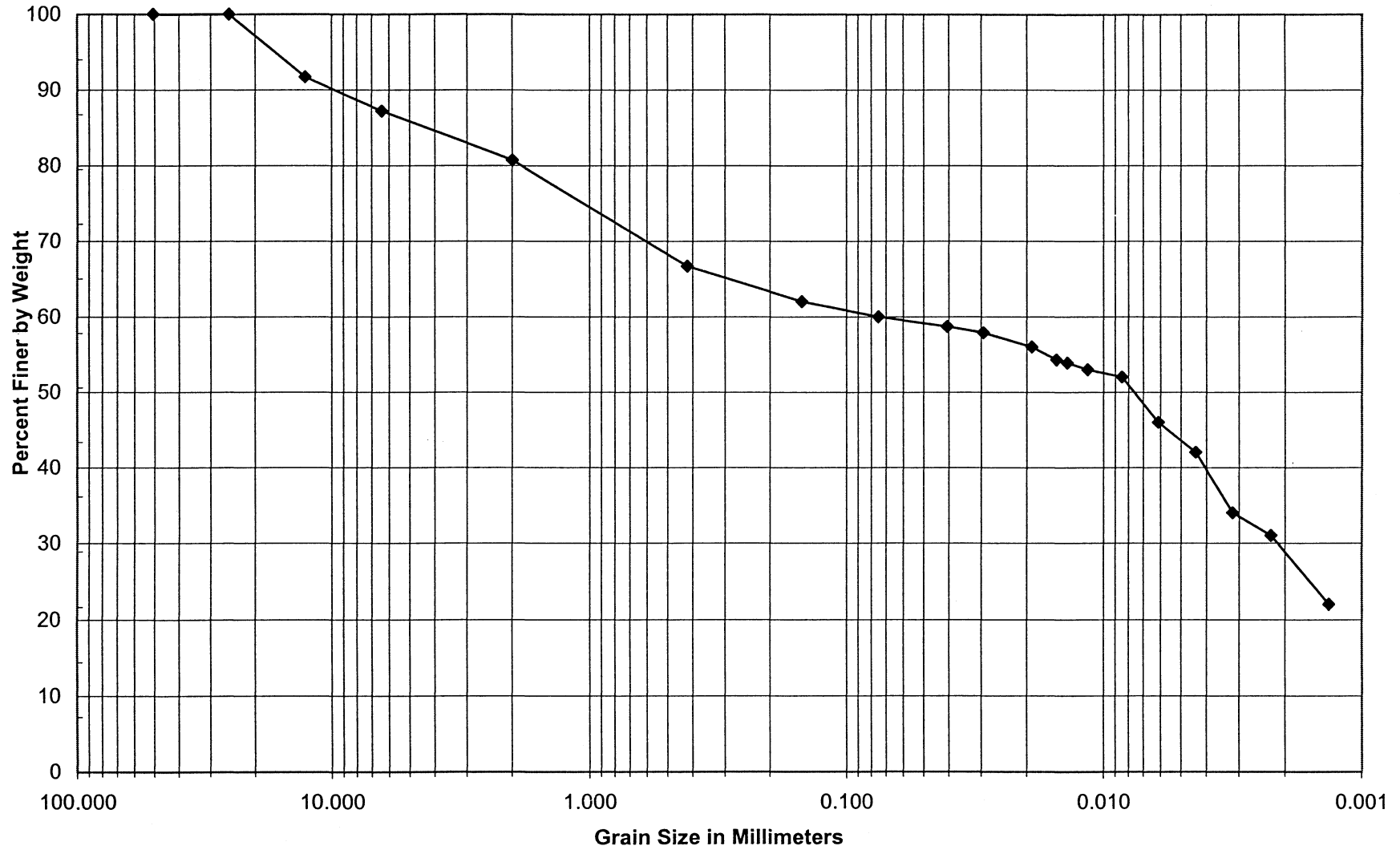
ASTM D 422; Sieve Analysis with Hydrometer
Crossroads Ventures Sample#: R1180010 SMT#: 82890



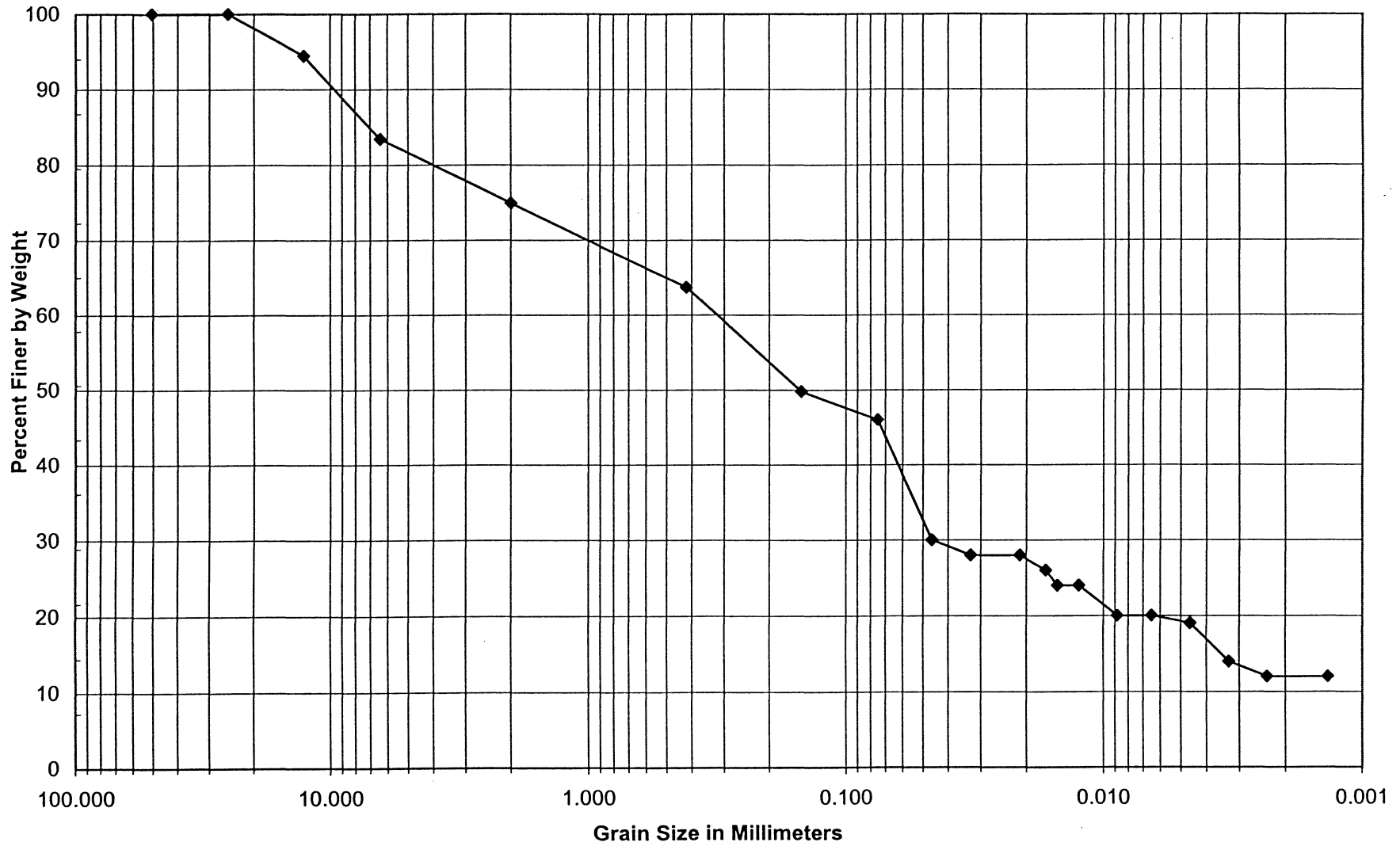
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Crossroads Ventures Sample#: T119002 SMT#: 82890



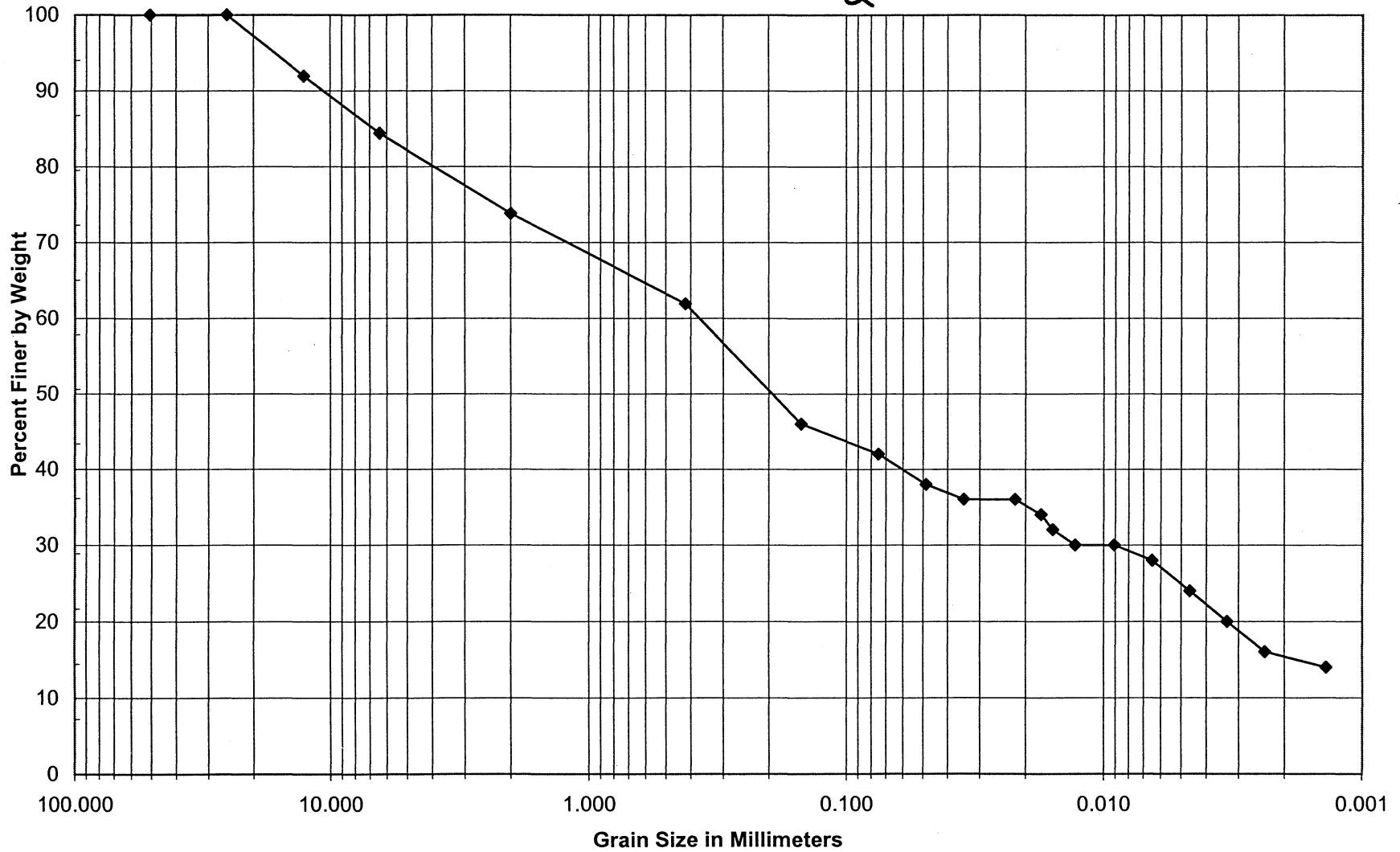
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Crossroads Ventures Sample#: T119004 SMT#: 82890



ASTM D 422; Sieve Analysis with Hydrometer
Crossroads Ventures Sample#: T119006 SMT#: 82890

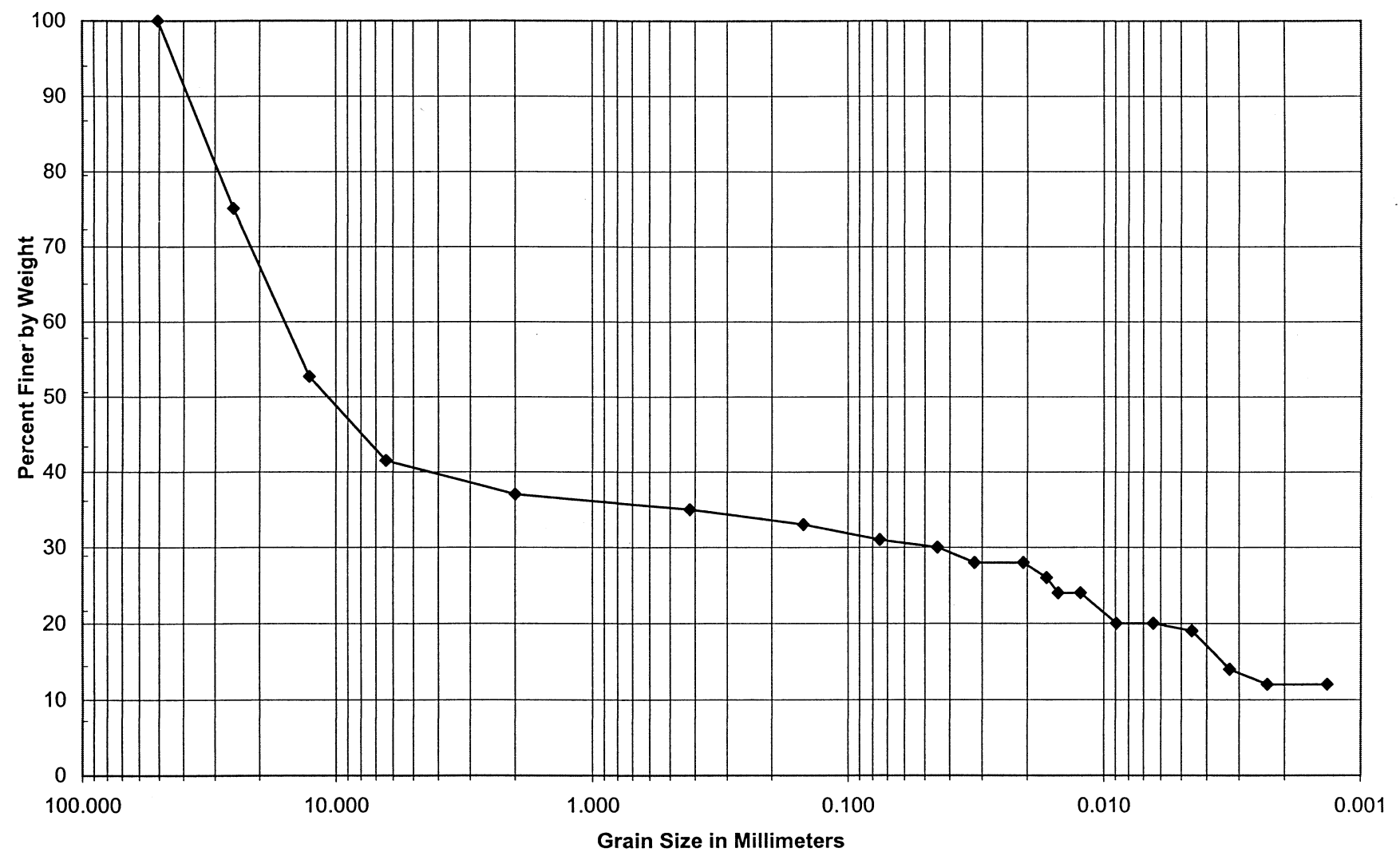


ASTM D 422; Sieve Analysis with Hydrometer
Crossroads Ventures Sample#: WAIZO SMT#: 82890
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DVP.

ASTM D 422; Sieve Analysis with Hydrometer
Crossroads Ventures Sample#: R1180010 SMT#: 82890





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JODI L. WALDORF

Vice President of Technical Services

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2007-2009

T119006

Time Seconds	Hydrometer Reading	Composite Reading	Depth "L"	Soil Dia. "D"	% "P" Suspend	Sieve Size	% Passing			
		R								
0.25	28	28	11.5	0.09115	56.00	50.800	100	These Top Numbers	50.800	2"
0.50	28	28	11.5	0.06446	56.00	25.400	100.0	Come from the	25.400	1"
1.0	27	27	11.9	0.04636	54.00	12.700	94.4	gradation	12.700	1/2"
2.0	27	27	11.9	0.03278	54.00	6.400	83.4	which should be	6.400	1/4"
5.0	24	24	12.4	0.02117	48.00	2.000	74.9	done before the	2.000	#10
8.0	23	23	12.5	0.01680	46.00	0.420	63.7	hydrometer is done	0.420	#40
10.0	22	22	12.7	0.01515	44.00	0.150	62.7		0.150	#100
15.0	21	21	12.9	0.01246	42.00	0.075	59.0		0.075	#200
30.0	20	20	13	0.00885	40.00	0.04636	54.00	These Bottom numbers		
60.0	14	14	14	0.00649	28.00	0.03278	54.00	come from the		
120.0	13	13	14.2	0.00462	26.00	0.02117	48.00	hydrometer part of		
240.0	12	12	14.3	0.00328	24.00	0.01680	46.00	the test		
480.0	10	10	14.7	0.00235	20.00	0.01515	44.00			
1440.0	9	9	14.8	0.00136	18.00	0.01246	42.00			
		1				0.00885	40.00			
						0.00649	28.00			
						0.00462	26.00			
						0.00328	24.00			
						0.00235	20.00			
						0.00136	18.00			

K1A120

Time Seconds	Hydrometer Reading	Composite Reading R	Depth "L"	Soil Dia. "D"	% "P" Suspend	Sieve Size	% Passing			
0.25	20	20	13	0.09692	40.00	50.800	100	These Top Numbers	50.800	2"
0.50	20	20	13	0.06853	40.00	25.400	100.0	Come from the	25.400	1"
1.0	19	19	13.2	0.04883	38.00	12.700	91.9	gradation	12.700	1/2"
2.0	18	18	13.3	0.03466	36.00	6.400	84.4	which should be	6.400	1/4"
5.0	18	18	13.3	0.02192	36.00	2.000	73.8	done before the	2.000	#10
8.0	17	17	13.5	0.01746	34.00	0.420	61.9	hydrometer is done	0.420	#40
10.0	16	16	13.7	0.01573	32.00	0.150	46.0		0.150	#100
15.0	15	15	13.8	0.01289	30.00	0.075	42.0		0.075	#200
30.0	15	15	13.8	0.00912	30.00	0.04883	38.00	These Bottom numbers		
60.0	14	14	14	0.00649	28.00	0.03466	36.00	come from the		
120.0	12	12	14.3	0.00464	24.00	0.02192	36.00	hydrometer part of		
240.0	10	10	14.7	0.00333	20.00	0.01746	34.00	the test		
480.0	8	8	15	0.00238	16.00	0.01573	32.00			
1440.0	7	7	15.2	0.00138	14.00	0.01289	30.00			
		1				0.00912	30.00			
						0.00649	28.00			
						0.00464	24.00			
						0.00333	20.00			
						0.00238	16.00			
						0.00138	14.00			

R1180010

Time Seconds	Hydrometer Reading	Composite Reading	Depth "L"	Soil Dia. "D"	% "P" Suspend	Sieve Size	% Passing			
		R								
0.25	33	33	10.9	0.08874	66.00	50.800	100	These Top Numbers	50.800	2"
0.50	33	33	10.9	0.06275	66.00	25.400	75.1	Come from the	25.400	1"
1.0	32	32	11.1	0.04478	64.00	12.700	52.7	gradation	12.700	1/2"
2.0	30	30	11.4	0.03209	60.00	6.400	41.5	which should be	6.400	1/4"
5.0	27	27	11.9	0.02073	54.00	2.000	37.0	done before the	2.000	#10
8.0	23	23	12.5	0.01680	46.00	0.420	35.0	hydrometer is done	0.420	#40
10.0	22	22	12.7	0.01515	44.00	0.150	33.0		0.150	#100
15.0	22	22	12.7	0.01237	44.00	0.075	31.0		0.075	#200
30.0	18	18	13.3	0.00895	36.00	0.04478	30.00	These Bottom numbers		
60.0	16	16	13.7	0.00642	32.00	0.03209	28.00	come from the		
120.0	15	15	13.8	0.00456	30.00	0.02073	28.00	hydrometer part of		
240.0	13	13	14.2	0.00327	26.00	0.01680	26.00	the test		
480.0	11	11	14.5	0.00234	22.00	0.01515	24.00			
1440.0	10	10	14.7	0.00136	20.00	0.01237	24.00			
		1				0.00895	20.00			
						0.00642	20.00			
						0.00456	19.00			
						0.00327	14.00			
						0.00234	12.00			
						0.00136	12.00			

T119004

Time Seconds	Hydrometer Reading	Composite Reading R	Depth "L"	Soil Dia. "D"	% "P" Suspend	Sieve Size	% Passing			
0.25	46	46	8.8	0.07974	92.00	50.800	100	These Top Numbers	50.800	2"
0.50	46	46	8.8	0.05638	92.00	25.400	100.0	Come from the	25.400	1"
1.0	44	44	9.1	0.04054	88.00	12.700	91.7	gradation	12.700	1/2"
2.0	41	41	9.6	0.02945	82.00	6.400	87.2	which should be	6.400	1/4"
5.0	37.5	37.5	10.1	0.01910	75.00	2.000	80.7	done before the	2.000	#10
8.0	36	36	10.4	0.01532	72.00	0.420	66.7	hydrometer is done	0.420	#40
10.0	34	34	10.7	0.01390	68.00	0.150	62.0		0.150	#100
15.0	32	32	11.1	0.01156	64.00	0.075	60.0		0.075	#200
30.0	26	26	12	0.00850	52.00	0.04054	58.70	These Bottom numbers		
60.0	23	23	12.5	0.00613	46.00	0.02945	57.90	come from the		
120.0	21	21	12.9	0.00441	42.00	0.01910	56.00	hydrometer part of		
240.0	17	17	13.5	0.00319	34.00	0.01532	54.30	the test		
480.0	15.5	15.5	13.7	0.00227	31.00	0.01390	53.90			
1440.0	11	11	14.5	0.00135	22.00	0.01156	53.00			
						0.00850	52.00			
						0.00613	46.00			
						0.00441	42.00			
						0.00319	34.00			
						0.00227	31.00			
						0.00135	22.00			

T119002

Time Seconds	Hydrometer Reading	Composite Reading	Depth "L"	Soil Dia. "D"	% "P" Suspend	Sieve Size	% Passing			
0.25	28	28	11.7	0.09194	56.00	50.800	100	These Top Numbers	50.800	2"
0.50	28	28	11.7	0.06501	56.00	25.400	100.0	Come from the	25.400	1"
1.0	28	28	11.7	0.04597	56.00	12.700	88.6	gradation	12.700	1/2"
2.0	28	28	11.7	0.03251	56.00	6.400	80.2	which should be	6.400	1/4"
5.0	27	27	11.9	0.02073	54.00	2.000	73.3	done before the	2.000	#10
8.0	26	26	12	0.01646	52.00	0.420	63.2	hydrometer is done	0.420	#40
10.0	24	24	12.4	0.01497	48.00	0.150	61.0		0.150	#100
15.0	22	22	12.7	0.01237	44.00	0.075	58.0		0.075	#200
30.0	20	20	13	0.00885	40.00	0.04597	56.00	These Bottom numbers		
60.0	18	18	13.3	0.00633	36.00	0.03251	56.00	come from the		
120.0	15	15	13.8	0.00456	30.00	0.02073	54.00	hydrometer part of		
240.0	13	13	14.2	0.00327	26.00	0.01646	52.00	the test		
480.0	12	12	14.3	0.00232	24.00	0.01497	48.00			
1440.0	10	10	14.7	0.00136	20.00	0.01237	44.00			
		1				0.00885	40.00			
						0.00633	36.00			
						0.00456	30.00			
						0.00327	26.00			
						0.00232	24.00			
						0.00136	20.00			

R1180010-1

Time Seconds	Hydrometer Reading	Composite Reading	Depth "L"	Soil Dia. "D"	% "P" Suspend	Sieve Size	% Passing			
		R								
0.25	26	26	12	0.09312	52.00	50.800	100	These Top Numbers	50.800	2"
0.50	26	26	12	0.06584	52.00	25.400	74.6	Come from the	25.400	1"
1.0	26	26	12	0.04656	52.00	12.700	68.5	gradation	12.700	1/2"
2.0	24	24	12.4	0.03347	48.00	6.400	64.0	which should be	6.400	1/4"
5.0	23	23	12.5	0.02125	46.00	2.000	62.4	done before the	2.000	#10
8.0	21	21	12.9	0.01707	42.00	0.420	60.0	hydrometer is done	0.420	#40
10.0	20	20	13	0.01532	40.00	0.150	58.6		0.150	#100
15.0	18	18	13.3	0.01266	36.00	0.075	54.5		0.075	#200
30.0	16	16	13.7	0.00908	32.00	0.04656	52.00	These Bottom numbers		
60.0	15	15	13.8	0.00645	30.00	0.03347	48.00	come from the		
120.0	12	12	14.3	0.00464	24.00	0.02125	46.00	hydrometer part of		
240.0	11	11	14.5	0.00330	22.00	0.01707	42.00	the test		
480.0	9	9	14.8	0.00236	18.00	0.01532	40.00			
1440.0	7	7	15.2	0.00138	14.00	0.01266	36.00			
		1				0.00908	32.00			
						0.00645	30.00			
						0.00464	24.00			
						0.00330	22.00			
						0.00236	18.00			
						0.00138	14.00			

T119005

Time Seconds	Hydrometer Reading	Composite Reading R	Depth "L"	Soil Dia. "D"	% "P" Suspend	Sieve Size	% Passing			
0.25	43	43	9.2	0.08153	86.00	50.800	100	These Top Numbers	50.800	2"
0.50	43	43	9.2	0.05765	86.00	25.400	83.5	Come from the	25.400	1"
1.0	39	39	9.9	0.04229	78.00	12.700	79.6	gradation	12.700	1/2"
2.0	38	38	10.1	0.03020	76.00	6.400	70.7	which should be	6.400	1/4"
5.0	32	32	11.1	0.02003	64.00	2.000	68.0	done before the	2.000	#10
8.0	29	29	11.5	0.01611	58.00	0.420	64.0	hydrometer is done	0.420	#40
10.0	28	28	11.7	0.01454	56.00	0.150	60.0		0.150	#100
15.0	23	23	12.5	0.01227	46.00	0.075	56.0		0.075	#200
30.0	21	21	12.9	0.00881	42.00	0.04229	52.00	These Bottom numbers		
60.0	20	20	13	0.00626	40.00	0.03020	48.00	come from the		
120.0	19	19	13.2	0.00446	38.00	0.02003	46.00	hydrometer part of		
240.0	15	15	13.8	0.00322	30.00	0.01611	42.00	the test		
480.0	12	12	14.3	0.00232	24.00	0.01454	40.00			
1440.0	10	10	14.7	0.00136	20.00	0.01227	36.00			
		0				0.00881	32.00			
						0.00626	30.00			
						0.00446	24.00			
						0.00322	22.00			
						0.00232	18.00			
						0.00136	14.00			

T119008

Time Seconds	Hydrometer Reading	Composite Reading	Depth "L"	Soil Dia. "D"	% "P" Suspend	Sieve Size	% Passing			
		R								
0.25	45	45	9.2	0.08153	90.00	50.800	100	These Top Numbers	50.800	2"
0.50	44	45	9.2	0.05765	90.00	25.400	92.3	Come from the	25.400	1"
1.0	41	41	9.9	0.04229	82.00	12.700	79.9	gradation	12.700	1/2"
2.0	41	41	10.1	0.03020	82.00	6.400	64.9	which should be	6.400	1/4"
5.0	35	35	11.1	0.02003	70.00	2.000	55.2	done before the	2.000	#10
8.0	33	33	11.5	0.01611	66.00	0.420	43.1	hydrometer is done	0.420	#40
10.0	30	30	11.7	0.01454	60.00	0.150	35.1		0.150	#100
15.0	24	24	12.5	0.01227	48.00	0.075	32.5		0.075	#200
30.0	23	23	12.9	0.00881	46.00	0.04229	30.90	These Bottom numbers		
60.0	22	22	13	0.00626	44.00	0.03020	29.20	come from the		
120.0	19	19	13.2	0.00446	38.00	0.02003	27.50	hydrometer part of		
240.0	17	17	13.8	0.00322	34.00	0.01611	26.00	the test		
480.0	12	12	14.3	0.00232	24.00	0.01454	24.00			
1440.0	10	10	14.7	0.00136	20.00	0.01227	22.00			
		0				0.00881	21.30			
						0.00626	20.00			
						0.00446	19.00			
						0.00322	17.00			
						0.00232	16.00			
						0.00136	15.00			

T119006

F-105

P. 02/09

T-499

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FROM-LA GROUP

FEB-17-01 13:46

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M/min

Time Seconds	Hydrometer Reading	Composite Reading R
0.25	28	28
0.50	28	28
1.0	27	27
2.0	27	27
5.0	24	24
8.0	23	23
10.0	22	22
15.0	21	21
30.0	20	20
60.0	14	14
120.0	13	13
240.0	12	12
480.0	10	10
1440.0	9	9
		1

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Depth "L"	Soil Dia. "D"	% "P" Suspend	Sieve Size	% Passing
11.5	0.09115	56.00	2 50.800	100
11.5	0.06446	56.00	1 25.400	100.0
11.9	0.04636	54.00	1/2 12.700	94.4
11.9	0.03278	54.00	1/4 6.400	83.4
12.4	0.02117	48.00	#10 2.000	74.9
12.5	0.01680	46.00	#40 0.420	63.7
12.7	0.01515	44.00	#100 0.150	62.7
12.9	0.01246	42.00	#200 0.075	59.0
13	0.00885	40.00	0.04636	54.00
14	0.00649	28.00	0.03278	54.00
14.2	0.00462	26.00	0.02117	48.00
14.3	0.00328	24.00	0.01680	46.00
14.7	0.00235	20.00	0.01515	44.00
14.8	0.00136	18.00	0.01246	42.00
			0.00885	40.00
			0.00649	28.00
			0.00462	26.00
			0.00328	24.00
			0.00235	20.00
			0.00136	18.00

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These Top Numbers
Come from the
gradation
which should be
done before the
hydrometer is done

These Bottom numbers
come from the
hydrometer part of
the test