

## **APPENDIX A HISTORICAL INFORMATION USED FOR SPRING/FALL 2016 SAMPLING**

## APPENDIX A

### HISTORICAL INFORMATION USED FOR WORK ORDERS 3, 3A, and 4A-020

#### A.1. Phase II Data Summary

With relevance to the characterization of the mobile pool and sediment stability overall, The Phase II Study Report concluded that historical mercury discharge was rapidly distributed and deposited throughout the Estuary, with limited evidence of significant mercury remobilization or sediment mixing (Chapter 5; Yeager, 2013). Yeager (2013) evaluated the magnitude of mercury contamination throughout the Estuary by defining categories of “local background” (100 nanograms per gram [ng/g]), “elevated” (300 ng/g), and “highly elevated” (600 ng/g) concentrations of total mercury. As presented in the Phase II Study Report, the mean, near-surface (upper 3 centimeters [cm]) total mercury concentration was highest in the Orland River (1,120 ng/g), followed in decreasing concentration by the Penobscot River Estuary (815 ng/g), Mendall Marsh (673 ng/g), and the combined Fort Point Cove and Lower Estuary (526 ng/g) (Yeager, 2013).

Applying the results of the sediment coring program, Yeager (2013) calculated the total mercury flux (nanograms of mercury per square centimeter of sediment surface per year [ $\text{ng cm}^{-2} \text{y}^{-1}$ ]) to bottom sediment as a strategy for estimating where mercury was currently accumulating in Estuary sediment. Applying this approach, Yeager (2013) concluded that average total mercury flux to Estuary sediment was highest in the Orland River ( $554 \text{ ng cm}^{-2} \text{y}^{-1}$ ), followed by the Penobscot River Estuary ( $469 \text{ ng cm}^{-2} \text{y}^{-1}$ ), Mendall Marsh ( $452 \text{ ng cm}^{-2} \text{y}^{-1}$ ), and the combined Fort Point Cove and Lower Estuary ( $204 \text{ ng cm}^{-2} \text{y}^{-1}$ ). Based on the difference between the distribution of mercury in contemporary near surface (upper 3 cm) sediment and the calculated flux to sediment, Yeager (2013) concluded that although the majority of sediment within the Estuary is stable, mercury associated with surface sediment is being redistributed throughout the Estuary. Conclusions from this evaluation of sediment stability suggest that the specific regions of the Estuary that receive redistributed sediment include the areas ~ 7-8 kilometers upstream and downstream of the HoltraChem Manufacturing Company, LLC facility, as well as Mendall Marsh, the area north and east of Verona Island, and the lower Orland River.

Evaluating Estuary hydrodynamics and the influence of hydrodynamics on sediment transport, the authors of the Phase II Study Report concluded that the mobile pool likely contained ~ 500,000 tons of sediment ( $\pm 50\%$  uncertainty) and accumulated its greatest mass seasonally near Bucksport and Frankfort Flats (Chapter 7; Geyer and Ralston, 2013). The residence time, i.e., the time it would take to completely turn over and ‘refresh’ the sediment in this shifting pool of sediment within the Estuary, was estimated to be between six and 25 years. In considering the potential for sediment transport and sediment storage within the Estuary, Geyer and Ralston (2013) observed that tidal currents reach ~ 1.5 meters per second (m/s) near Bucksport, 1 m/s near Winterport and Frankfort Flats, and 0.3 - 0.6 m/s in Mendall Marsh and Orland River. As can be characteristic of estuaries, due to the greater density of salt water versus fresh water, net flow for the main river channel in the Estuary was primarily downstream for surface water (at a speed



of ~ 0.4 m/s) and mainly upstream for bottom water (at a speed of 0.1- 0.2 m/s). Within the channels of Mendall Marsh and the Orland River, the average direction of sediment transport was landward, suggesting that sediment is deposited in these areas rather than being flushed out (eroded) and removed.

The Phase II Study Report compared total mercury and methylmercury concentrations in mobile pool sediment versus total mercury and methylmercury concentration in underlying stable bed sediment. For this analysis, surficial sediment was classified into 10 bottom types and characterized as “mobile” or “non-mobile” (Chapter 8; Kelly, 2013). For sediment classified as ‘mobile’, total mercury concentrations ranged from less than 10 ng/g to greater than 2,000 ng/g (dry weight). For sediment classified as ‘non-mobile’, total mercury concentrations ranged from less than 10 ng/g to greater than 3,400 ng/g. In general, for samples characterized in the Phase II Study, strong positive associations were observed between sediment total mercury concentration and either percent fine grained sediment (i.e., silt and mud) and/or percent total organic carbon. Importantly for considering the composition of the mobile pool, when total mercury concentrations were normalized to percent organic carbon (i.e., when the concentration of mercury is divided by the concentration of organic carbon), the Phase II Study Report documented no difference in the concentration of ‘carbon normalized’ total mercury between ‘mobile’ and ‘non-mobile’ sediments (Kelly, 2013).

Methylmercury was detected in the majority of the sediment samples and was positively correlated with total mercury; overall ~ 3% of the total mercury in sediment was measurable as methylmercury (Kelly, 2013). Because methylmercury was frequently detected in mobile sediment that may re-suspend in to the water column, methylmercury associated with the mobile pool may serve as an additional route of exposure for biota.

The Phase II Study Report identified habitats within the Estuary and associated salt marshes where methylation of inorganic mercury was likely enhanced, either in terms of enhanced production (i.e., higher *in situ* methylation rates) or enhanced storage (i.e., greater accumulation of methylmercury in sediment) (Chapter 11; Gilmour et. al., 2013). The Phase II Study Report authors concluded that: (1) when normalized to total organic carbon, total mercury in Estuary sediment and salt marsh soils was greater for the Penobscot Estuary than for other East Coast (U.S.) ecosystems (that may or may not have been industrially impacted by mercury discharge); and (2) methylmercury accumulation in marsh soil, estuary sediment, and both soil and sediment porewater was greater for the Penobscot Estuary than for other mercury-impacted marshes studied and was likely correlated with elevated *in situ* methylation rates. The authors conclude that inorganic mercury appeared to be readily available for microbial methylation within Estuary sediment and associated salt marsh soils (Gilmour et al., 2013).

Taken together, the data from the Phase II Study Report identified that the Estuary contains a mobile pool of bed sediment that is characterized by elevated mercury concentrations and support the need for further investigation of sediment transport dynamics (including deposition and re-mobilization) within the Estuary. A better understanding of sediment transport dynamics will improve understanding of spatial and temporal trends in sediment mercury dynamics (including methylation potential), which will, in turn improve the evaluation of potential remedial alternatives and ecosystem recovery rates for the Estuary.

### **A.1.1 Hydrography of the Penobscot River (Maine) Estuary (Haefner, 1967)**

This report presents the results of hydrographic surveys conducted in the Penobscot River Estuary from 1963 to 1965 as a component of a larger, long-term project focused on estuarine ecology (Haefner, 1967). Survey results suggested that the Penobscot River Estuary was characterizable as a partially mixed or moderately stratified estuary. Stratification in the estuary was both in terms of water temperature (with impacts on the dissolved oxygen concentration of surface water) and salinity. In the lower reaches of the estuary (in the vicinity of Bucksport and Verona Island), sawdust was present in bottom water and/or sediment, but not at concentrations sufficient to deter the established of benthic communities. Flooding tides transported sawdust upgradient in the estuary and the accumulation of sawdust on the estuary bed likely led to the deterioration of benthic habitat.

### **A.1.2 1972 Penobscot River Study (Penobscot River Study Team, 1972)**

The 1972 Penobscot River Study was a multi-disciplinary effort focused on engineering, history, business management, politics and ecology. The study concluded that: the Penobscot River suffered periodic oxygen demand as the result of waste discharge, and that through the combination of waste discharge and oxygen depletion, the river could not sustain healthy fish populations or serve as a source of municipal drinking water.

### **A.1.3 Fine Sediment Trapping in the Penobscot River Estuary (Hegermiller, 2011)**

This study used hydrographic (flow) + bed sediment data to evaluate processes influencing sediment transport and trapping in the Estuary. Data were collected during the 2010 spring freshet. Results indicated a spatial correlation between a zone of increased surface water turbidity and the landward extent of salinity intrusion in the Estuary. This zone of increased turbidity (a ‘turbidity maximum’) may be responsible for transport and trapping of fine sediment in the Frankfort Flats reach of the Estuary. Sediment trapping within this reach of the Estuary was also determined to be influenced by the shape of the channel, with channel bends and secondary circulation influencing the lateral (side – to – side) distribution of sediment within this reach.

### **A.1.4 Sweden River Fiber Study/The Fiber Bank Project (Apler et. al., 2014)**

This project focused on the development of hydro-acoustic surveying techniques to identify and map fibrous sediments. Using both surface scanning and sub-bottom profiling, the hydro-acoustic survey technique successfully identified both 100% fiber banks and fiber-rich sediments.

### **A.1.5 Macrobenthic Ecology of a Sawdust-Bearing Substrate in the Penobscot River Estuary (Maine) (Shorey, 1973)**

This study presented results of bi-monthly macrobenthos sampling at two stations near the southeastern tip of Verona Island. Stations were characterized as intertidal and subtidal. Sampling included benthic organisms, water column chemistry (dissolved oxygen, salinity and temperature) and sediment grain size analysis. In terms of benthic community indices, results suggested the bio-index for the intertidal station (Station 1) was 2x the bio-index for the subtidal station (Station 2). Organisms present in Station 1 included *Heteromastus filiformis*, *S. viridis*, *M. balthica*, *Pygospio*

*elegans*, *Aglaophamus sp.*, and *Mytilus edulis*. In terms of grain size analysis, Station 1 was characterized as dominantly ‘fine sand’, while Station 2 included >50% gravel. Wood chips comprised 14% of the sediment volume for the intertidal station (Station 1), and 15% of the sediment volume for the subtidal station (Station 2).

#### **A.1.6 Heavy Metal Levels in Suspended Particulates, Biota, and Sediments of the St. Croix Estuary in Maine (Fink et. al., 1976)**

This study characterized the distribution of the heavy metals in the water, suspended particulates, sediments and biota of four Maine estuaries. Metals analyzed included silver, cadmium, chromium, copper, iron, mercury, manganese, nickel, lead and zinc. Estuaries included in the analysis were the St. Croix, Damariscotta, Naraguaguas, and Union. For the St. Croix River, samples were collected at 30+ sampling locations along the length of the river to characterize chemical loading from various industrial processes.

#### **A.1.7 Wintering Shortnose Sturgeon and Their Habitat in the Penobscot River, Maine (Lachapelle, 2013)**

For this study, 42 sediment samples were collected to assess substrate in shortnose sturgeon (*Acipenser brevirostrum*) habitat in the Penobscot River Estuary. Results indicated that substrate was dominated by fine and coarse gravels. In terms of population dynamics, shortnose sturgeon appeared to arrive in the Estuary from mid-August to early November and leave the Estuary from mid-March to early April. Population estimates during this study period ranged from 539 to 1186 sturgeon.

#### **A.1.8 Mercury Dynamics in Sulfide-Rich Sediments: Geochemical Influence on Contaminant Mobilization and Methylation within the Penobscot River Estuary, Maine (Merritt, 2007)**

This study examined the chemical speciation and mobilization potential of total mercury within Penobscot River Estuary sediments. Mercury cycling in the Estuary was studied using a combination of equilibrium porewater samplers and kinetic modeling. Vertical profiles of mercury in sediment porewater suggested that the dominant mechanism likely responsible for mercury transport in surface sediments (0 – 6 cm) was diffusive transport toward the sediment-water interface. Regarding mercury methylation, methylation dynamics in the vicinity of the sediment-water interface warrant examination, because the processes responsible for methylation of mercury and demethylation of methyl mercury frequently overlap spatially and the factors that influence the balance between these processes may determine the extent to which methyl mercury accumulates. This observation suggests that across a transect defined from the subtidal zone to the adjacent saltmarsh surface, a similar contaminant concentration may be subject to both a range of potential transport mechanisms and variations in ultimate biological availability. As example, in the upper intertidal zone or on the banks of the saltmarsh creeks, aqueous phase methylmercury efflux may be suppressed by demethylation within the area of the sediment-water interface, whereas in locations such as saltmarsh pools, heightened methyl mercury efflux into overlying water may occur.

### A.1.9 Effects of Pulp and Paper Mill Discharges on Fish Populations in Three Maine Rivers (Mower, 2009)

This study assessed the impact of pulp and paper mill discharge on fish populations in the Androscoggin, Kennebec and Penobscot Rivers. Objectives of this study included: 1) assessment of metabolic disruption in fish populations in the Androscoggin river; 2) development of population estimate of white suckers from exposed sites to allow comparison with areas un-impacted by discharge; 3) conducting ‘above/below’ studies to determine if discharge impacted reproductive fitness in fish species; and 4) assessment of metabolic disruption below bleached pulp and paper mills on the Kennebec and Penobscot Rivers. The study concluded that the data suggests that endocrine disruption is the predominant response in fish populations to pulp and paper mill discharges.

### A.1.10 INSET 2.2 – Dredging Material Disposal History and Condition Surveys (USACE)

<i>File Name</i>	<i>Year</i>	<i>Description</i>	<i>XYZ File</i>
<i>PEN2476</i>	1998	Condition survey, starts north of Frankfort flats to south of Brewer	No
<i>PEN2597</i>	2004	Condition survey, Bangor Harbor	Yes
<i>PEN2668</i>	2010	Condition survey, from Bucksport to Bangor	Yes
<i>Penob_dipo_2014-03-10</i>	1960-2006	Summary of disposal history	N/A
<i>PEN2466</i>	1997	Condition survey, between Lawrence cove and Frankfort Flats	No
<i>PEN2465</i>	1997	Condition survey, Lawrence cove, channel only	No
<i>PEN2464</i>	1997	Condition survey, Frankfort Flats, channel only	No
<i>PEN2463</i>	1997	Condition survey, Bangor harbor	No
<i>PEN2220</i>	1984	Condition survey, Lawrence cove	No
<i>PEN1981</i>	1974	Existing federal projects, Bangor harbor to Penobscot bay	N/A
<i>PEN1593</i>	1963	Existing federal projects, Bangor harbor to Penobscot bay	N/A
<i>PEN593</i>	1938	Condition survey, Bangor harbor	No

### A. 1.11 University of Maine Interviews & Library Document Search

To supplement the physical and chemical analysis of the mobile sediment pool components, review of previous studies and published literature and discussions with study authors (e.g., University of Maine researchers) provided supplemental data to characterize the mobile sediment mix temporally and spatially. On June 22, 2016, a literature search was completed at the

University of Maine Library special collections section, the Law and Legislative Reference Library and State Library in Augusta. Multiple relevant documents were retrieved. Summaries of each document were produced to further build upon the knowledge background regarding previous studies completed and data collected in the Penobscot River.

On June 23, 2016, interviews were completed with University of Maine professors to assess the availability of other relevant research. The interviews included:

- Dr. Daniel Belknap, Professor of geological sciences;
- Dr. Joseph Kelley, Professor of marine geology;
- Dr. Gayle Zydlewski, Professor of marine fisheries; and,
- Ruth Hallsworth, Strategic Program Manager of the Mitchell Center for Sustainability Solutions.

Dr. Belknap discussed his geophysical surveys completed in 2010 to characterize riverbed sediment type in areas ranging from Winterport to Fort Point Cove. Dr. Belknap also provided a copy of field notes and observations during completion of the 2010 surveys. However, the data from the 2010 surveys were not provided by Dr. Belknap. Dr. Kelley shared his involvement with geophysical studies to characterize riverbed sediments and coring activities. However, the majority of his research has been conducted in Penobscot Bay, which is south of the of the Phase II Study and Phase III Engineering Study boundaries. Dr. Zydlewski discussed her extensive research on shortnose and Atlantic sturgeon in the Penobscot River. Dr. Zydlewski has also instrumented a telemetry program for the listed sturgeon with the use of acoustic monitoring equipment. Ms. Hallsworth discussed her involvement with organizing databases and compiling research completed in the Penobscot River. Under her direction, the Gulf of Maine resource database was identified that contains pertinent documents related to previous pollution, hydrology and fishery studies. The Gulf of Maine database was later utilized to search for relevant literature.

#### **A.1.12 Vote to Retain Orland River Dam**

In 2010, the town of Orland took ownership of the Orland River Dam. The dam was built in the 1930s and was previously owned by Verso Paper, but the dam no longer served its purpose of creating a water source for the mill after Verso Paper starting pulling its water supply from another upstream dam. The Orland Dam Committee subsequently contracted Stantec Consulting Services to conduct a feasibility study that was completed in 2013. The feasibility study focused on collected data to consider multiple options for the town's ownership of the dam moving forward. The options considered included (a) rehabilitation and repair; (b) modification to the alewife fish way through which alewives move upstream; (c) replacement with a natural structure; (d) total dam removal; or (e) no action. The feasibility study suggested that keeping the dam and paying for annual maintenance or dam removal were the most favorable options, and the removal of the dam would benefit fish habitat and populations. The town of Orland's concerns included lower water levels negatively affecting local recreation and real estate values, not having an alternative source of freshwater for the municipal fire department (saltwater cannot be used by fire-fighting equipment), potential infrastructure issues with the Castine and Upper Falls Road bridges, and the potential for mercury contamination present below the dam in the Orland River to be more

easily transported upriver. Therefore, Orland residents voted on June 14, 2016, to keep and maintain the Orland River Dam.

#### **A.1.13 Lobster Closure Extended**

On June 21, 2016, the Maine Department of Marine Resources (DMR) extended the lobster and crab fishing closure's southern boundary to between Squaw Point on Cape Jellison and Perkins Point in Castine due to elevated mercury levels reported south of the existing closure boundary. This builds on the previous closure area were enacted in 2014 where DMR closed the portion of the river from Fort Point Cove and upriver after data was published from the Penobscot River Mercury Study initially reporting elevated mercury concentrations in lobster tissue. Even though mercury concentrations in lobster tissue has been reported to decrease geographically from north to south in the Penobscot River, mercury levels from lobsters sampled from Cape Jellison in 2014 were elevated enough to warrant the extended closure boundary. An average of 292.7 ng/g mercury in tissue was reported in lobsters caught in the Penobscot Bay estuary, which exceeds the 200 ng/g limit recommended by the Maine Center for Disease Control and Prevention. DMR references the 200 ng/g threshold for fishing management decisions.



## APPENDIX A REFERENCES

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Yeager, K.M. 2013. Total mercury sedimentary inventories and sedimentary fluxes in the lower Penobscot River and estuary, Maine; Penobscot River Mercury Study, Chapter 5. 784-941.



## **APPENDIX B**

### **BACKGROUND INFORMATION**

## APPENDIX B

### BACKGROUND INFORMATION

Background information and the Phase III Engineering Report team's notes and justification for the initial reach designation is provided below.

#### B.1 Background Information:

- NOAA Nautical Charts (current and historical);
- NOAA Coast Pilot publications (historical);
- NOAA National Ocean Survey records (NOS) (1999 published multi-beam survey and side scan images);
- USACE Condition Surveys (2010 published, 2008/9 collected);
- USACE Federal Navigation Channel mapping (historical);
- US Geological Survey surface water gages;
- NOAA National Climatic Data Center weather records;
- Publicly-available aerial photography (current and historical);
- Interpretation and extrapolation of publicly-available data to forecast the Spring Freshet and its associated sediment bedload transport to or through the locations to be assessed; and,
- Phase I and Phase II Study reports, interviews, and data processed to-date.

#### B.2 Additional Pre-Field Data Collection, Interviews and Interpretation:

- Collect historical USACE Condition Surveys to evaluate accumulation trends with the intent to refine the study locations;
- Collect historical NOAA NOS surveys to evaluate accumulation trends and bottom conditions with the intent to refine the study locations;
- Interview Penobscot River Pilots to obtain locations of seasonal accumulations that affect river navigation as well as tidal influence for vessel operations;
- Interview local marine contractors to obtain general information regarding sub-bottom conditions and encountered material expectations;
- Interview USACE and research the navigational channel dredging history and dredged material placement locations since the start of Holtrachem operations;
- Identify locations of additional study areas to be visited, if time permits, during the on-water field work; and,
- Identify and collect survey benchmark data.

#### B.3 Notes Regarding Reach Identification, Delineation and Justification

##### B.3.1 Bucksport

The Bucksport location was selected to characterize the predicted upstream Spring Freshet mobile pool location. This location is between the cable crossing (N.E. T&T submarine telephone crossing) and Harriman Cove (upstream of channel marker GC-9) including the Lawrence Cove

Channel. This location is approximately one river mile (statute) in length. This location was selected based on:

- The Phase II Study forecasted the mobile pool is likely to be present at this location in the spring;
- Historical nautical records reported shifting shoals in this location which may indicate the seasonal presence of a “mobile pool”;
- The presence of the federally-authorized 22-foot Lawrence Cove Channel indicates a repetitive shoaling causing a navigational obstruction that was historically dredged. The navigation channel shoaling indicates a location of sediment deposition;
- The presence of the USACE Condition Survey (2010) and NOAA NOS H10157 (1984-1985) survey provides survey overlap for comparison purposes against the data to be collected under this Work Order;
- The presence of a groin provides potential trapping location of historically-mobile or transported sediments;
- The sediment characterization information from this effort addressed a spring season data gap when compared against the NOAA sediment type characterization, as well as provided comparison against the NOAA sediments and river bottom characterization over time; and,
- The survey data from this effort can be compared to the mobile and non-mobile sediment characterization mapping prepared by the Phase II Study.

### **B.3.2 Frankfort Flats**

The Frankfort Flats location was identified to characterize the predicted Fall/Winter mobile pool. This location begins at the mouth of the Marsh River extending upstream to the cable area downstream of Drachm Point including the Frankfort Flats Channel approximately 1.25 river miles (statute) in length. This location was selected based on:

- The Phase II Study forecasted the mobile pool to extend to this area in the fall;
- Historical nautical records reported difficult navigation in this reach from shifting shoals, boulders and debris, which may indicate the seasonal presence of a “mobile pool”;
- The presence of the federally-authorized 22-foot Frankfort Flats Channel may indicate repetitive shoaling and other navigational obstructions as well as historical dredging that alter flow regimes. The navigation channel shoaling may indicate location of sediment deposition;
- The presence of the USACE Condition Survey (2010), and NOAA NOS H10146 (1984) and H10157 (1984-1985) surveys provide survey overlap to compare against data to be collected under this Work Order;
- The presence of a series of groins provide potential trapping location of historically-mobile or transported sediments;
- The sediment characterization information from this effort addressed a spring season data gap when compared against the NOAA sediment type characterization and allowed comparison against the NOAA sediments and river bottom characterization over time; and,
- The survey data from this effort can be compared to the mobile and non-mobile sediment characterization mapping completed by the Phase II Study.

### **B.3.3 Hampden**

The Hampden location was identified to characterize the upper reaches of the Estuary as well as small coves and mudflats along the riverbanks. This location begins at channel marker RN-24 extending upstream 2,000 feet. This location was selected based on:

- The discussions with the Phase II Study forecasted this as the mobile pool most upstream location in the fall;
- Historical aerial photographs collected at low tide appear to show a depositional sediment trapping area on the west bank, characterization of which can assess in-water remedial actions to similar features;
- The presence of the USACE Condition Survey (2010) and NOAA NOS H10136 (1984) survey provide survey overlap to compare against the data to be collected under this Work Order;
- The sediment characterization information from this effort addressed a spring season data gap when compared against the NOAA sediment type characterization and allowed comparison against the NOAA sediments and river bottom characterization over time; and,
- The survey data from this effort can be compared to the mobile and non-mobile sediment characterization mapping completed by the Phase II Study Panel.

### **B.3.4 Gross Point**

The Gross Point location was selected to characterize a prospective seasonal location of the mobile pool. This location begins about 0.5 mile south of the confluence of the Eastern Channel and the Orland River proceeding upstream into the Orland River 0.25 statute mile and into the Eastern Channel 0.25 statute mile. This location was selected based on:

- The discussions with the Phase II Study forecasted this as the mobile pool location in the fall;
- The presence of the USACE Condition Survey (2010) and NOAA NOS H10134 (1985) survey provide overlap to allow comparison against the data to be collected under this Work Order;
- The sediment characterization information from this effort addressed a spring season data gap when compared against the NOAA sediment type characterization and allowed comparison against the NOAA sediments and river bottom characterization over time;
- Historical aerial photographs collected at low tide appear to show intertidal flats and narrow channels characterization of which can assess in-water remedial actions to similar features; and
- The survey data from this effort can be compared to the mobile and non-mobile sediment characterization mapping completed by the Phase II Study.

### **B.3.5 Fort Point Cove**

The Fort Point Cove location was selected as a reference location for the open waters of the upper Penobscot Bay. This location is a single east-west transect bisecting Fort Point Cove; approximately 3 statute miles. This location was selected based on:

- The discussions with the Phase II Study forecasted this as non-mobile pool to compare against other study areas;
- The presence of the NOAA NOS H10868 Multi-beam and Side Scan Sonar (1999) and NOAA NOS H10134 (1985) surveys provide survey overlap for comparison purposes against data to be collected under this Work Order;
- The sediment characterization information from this effort addressed a spring season data gap when compared against the NOAA sediment type characterization as well as provided comparison against the NOAA sediments and river bottom characterization over time; and,
- The survey data from this effort can be compared to the mobile and non-mobile sediment characterization mapping completed by the Phase II Study.

### **B.3.6 Odom Ledge**

The Odom Ledge location was selected to characterize the “delta” of the Penobscot River where in-suspension sediments may precipitate after the currents in the narrows. This location begins 1,500 feet north of channel marker R-6A extending south to channel marker GC-5, approximately 1.15 statute miles. This location was selected based on:

- Characterizing a location reflective of typical river/estuary hydrodynamics where suspended sediment would be expected to deposit;
- Historical nautical records reported difficult navigation in this reach from shifting shoals, boulders, and debris, which may complicate in-water remedial actions;
- The presence of the NOAA NOS F00448 (1998) and H10134 (1985) survey provide survey overlap for comparison purposes against data to be collected under this Work Order;
- The sediment characterization information from this effort addressed a spring season data gap when compared against the NOAA sediment type characterization and enabled comparison against the NOAA sediments and river bottom characterization over time; and,
- The survey data from this effort can be compared to the mobile and non-mobile sediment characterization mapping completed by the Phase II Study.

## **APPENDIX C**

### **PHOTO LOGS**

## **APPENDIX C1**

### **Work Order 3: Photo Log**

PHOTO 1:

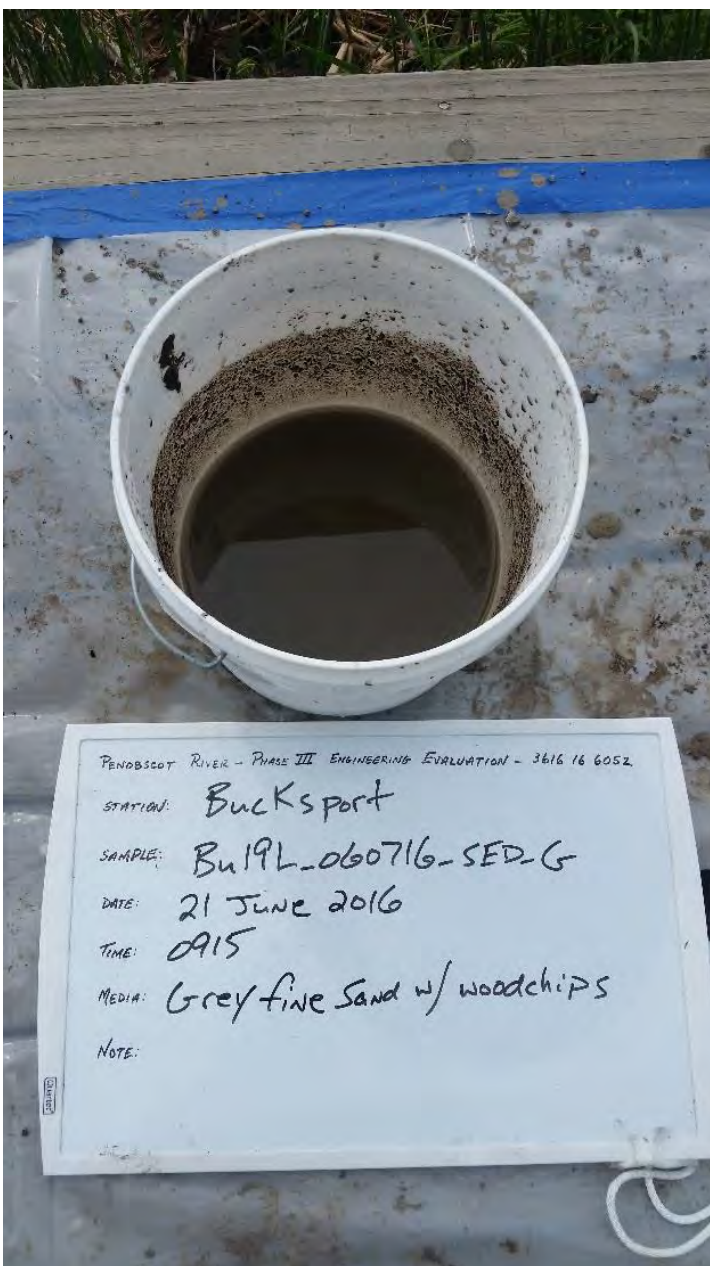




PHOTO 2:

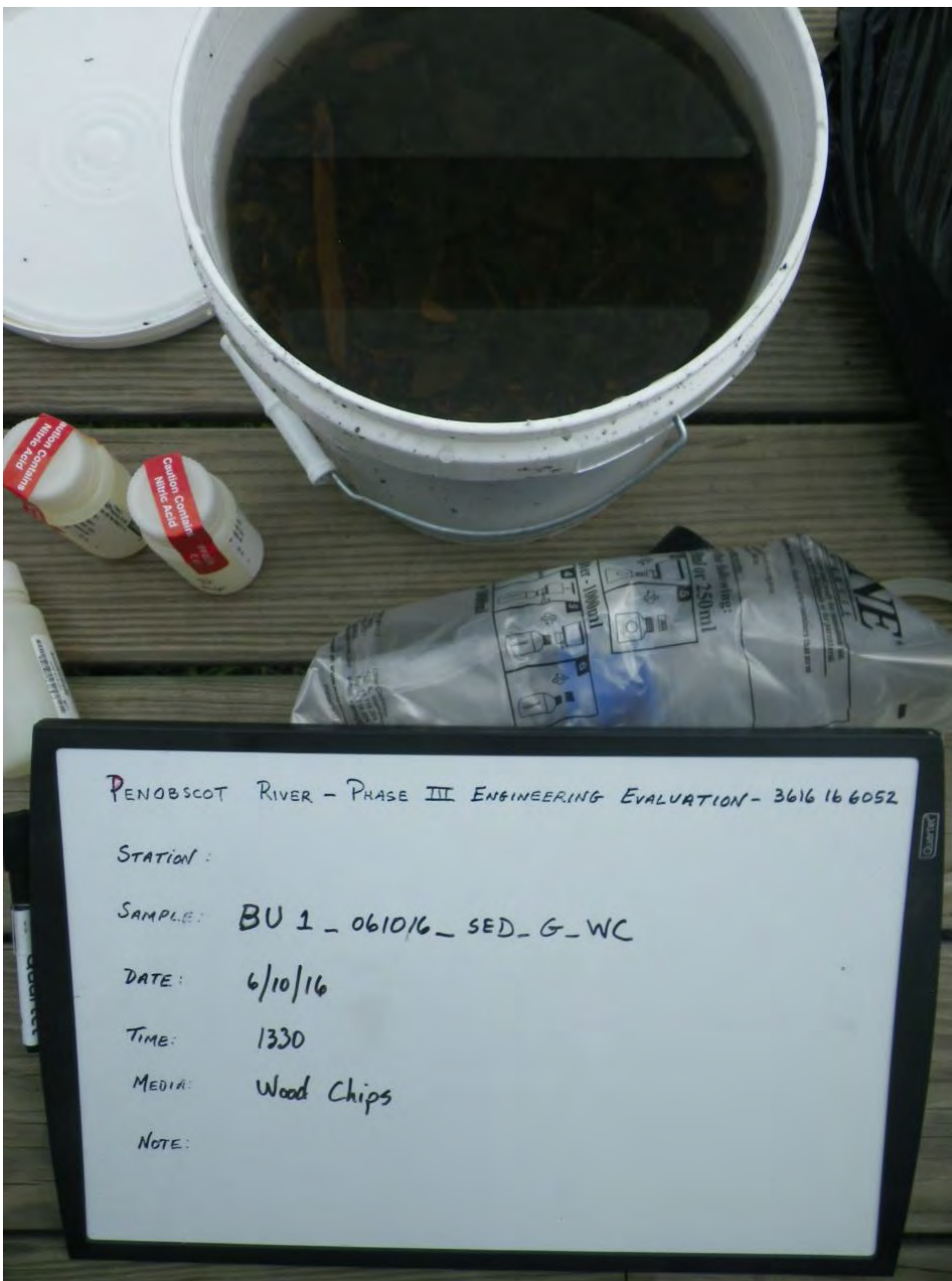


PHOTO 3:



PHOTO 4:

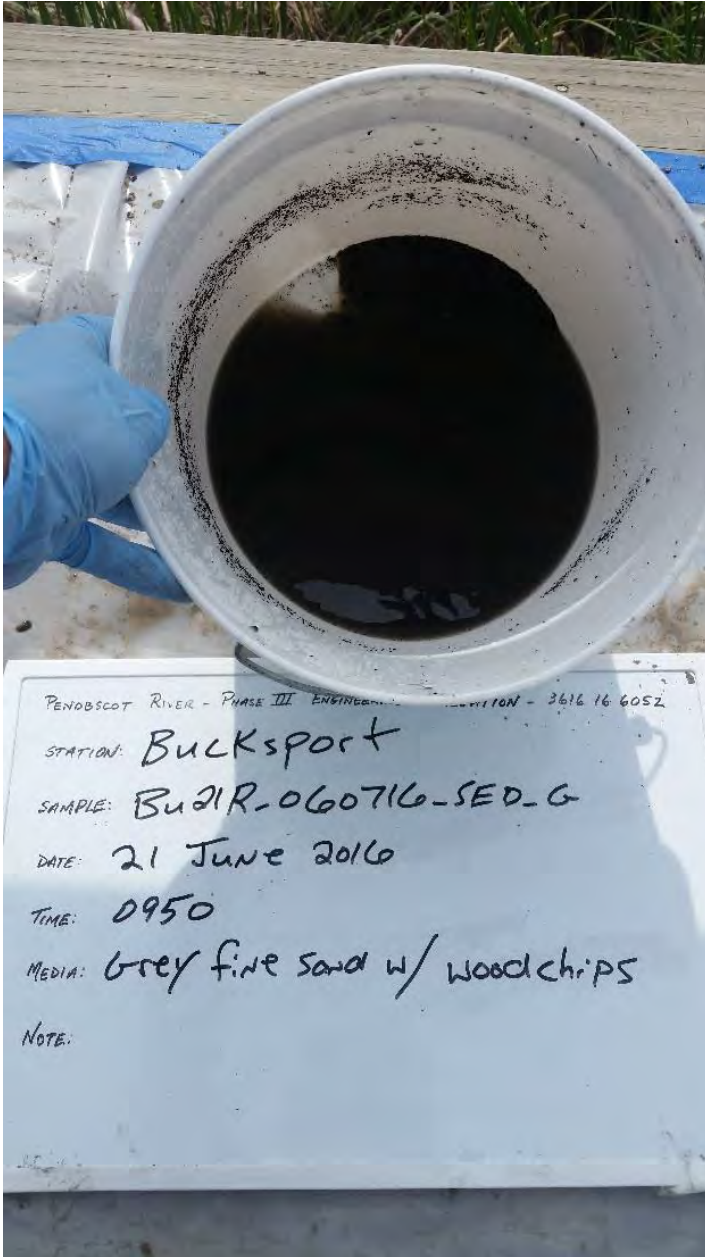




PHOTO 5:



PHOTO 6:

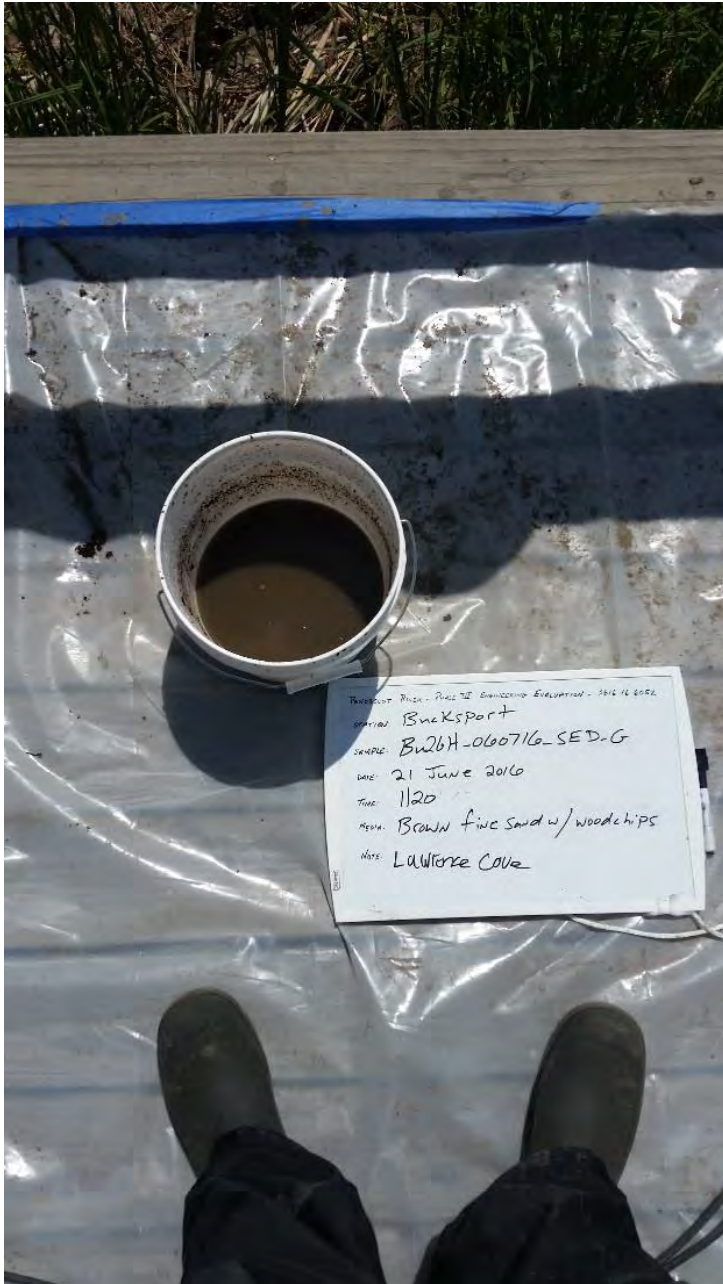


PHOTO 7:

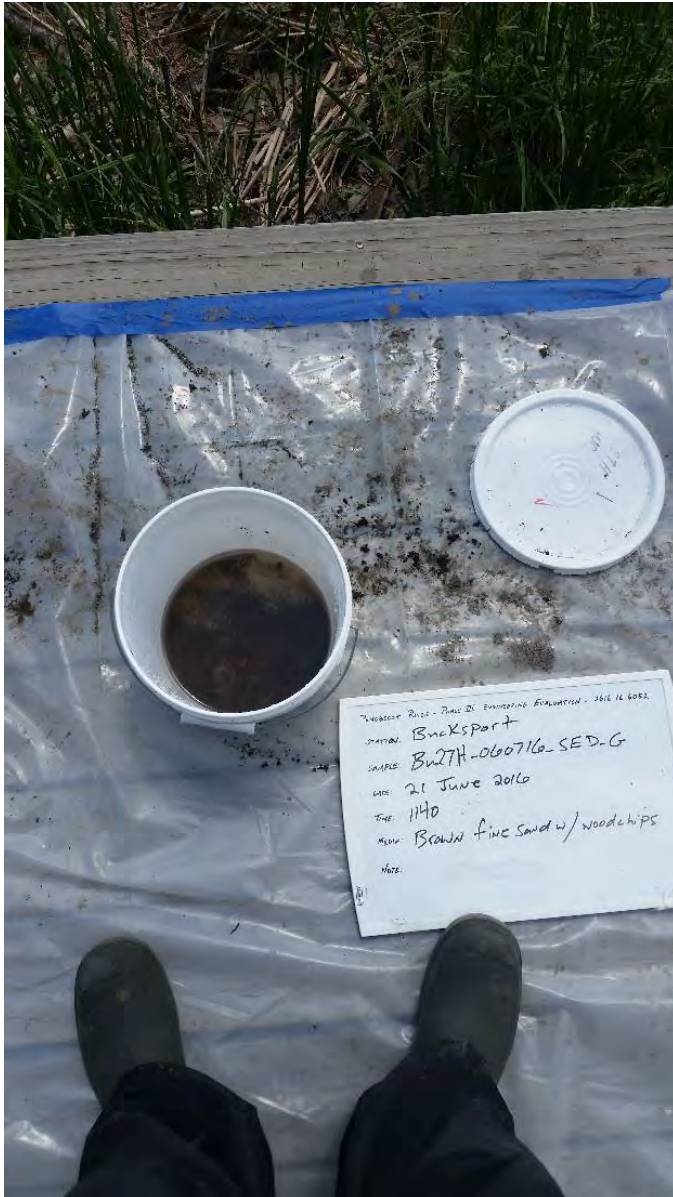




PHOTO 8:

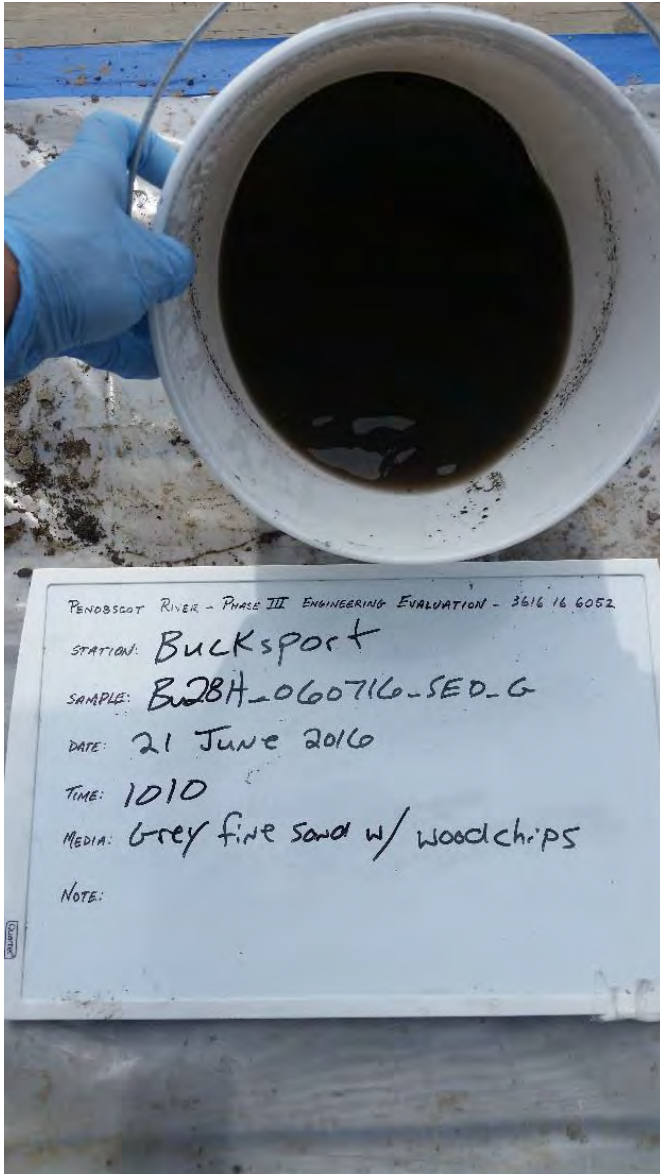


PHOTO 9:

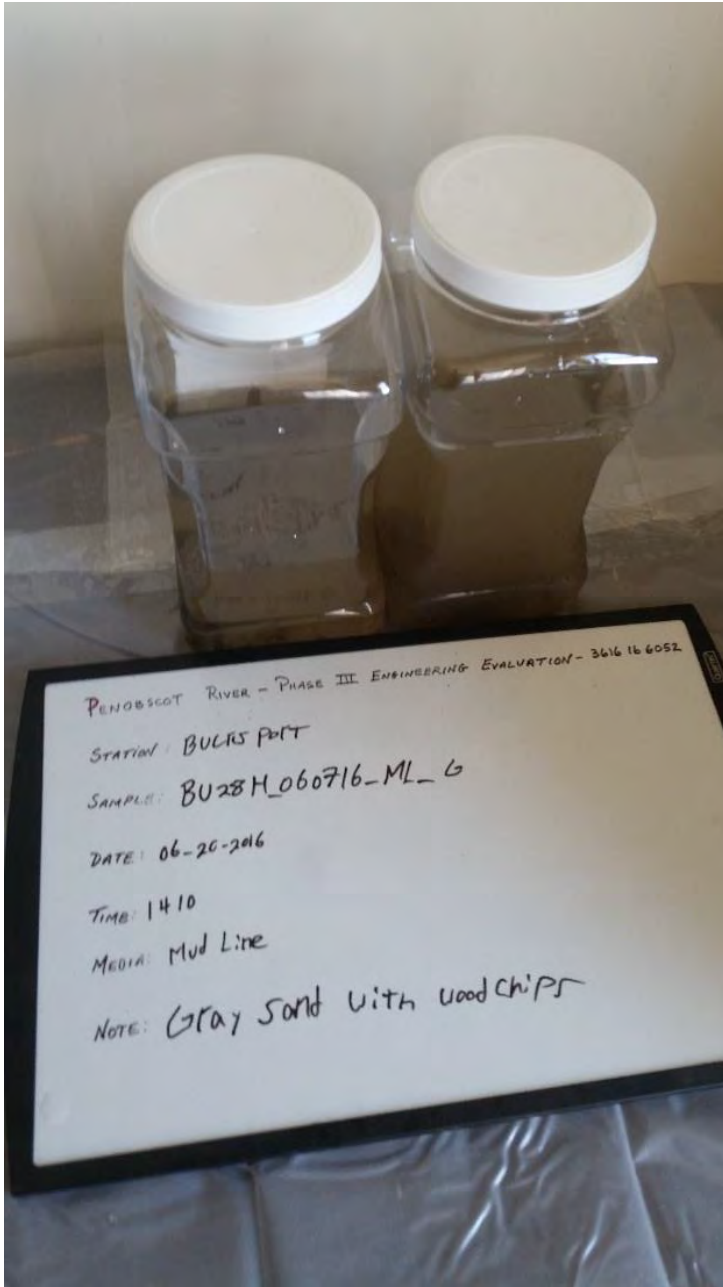




PHOTO 10:

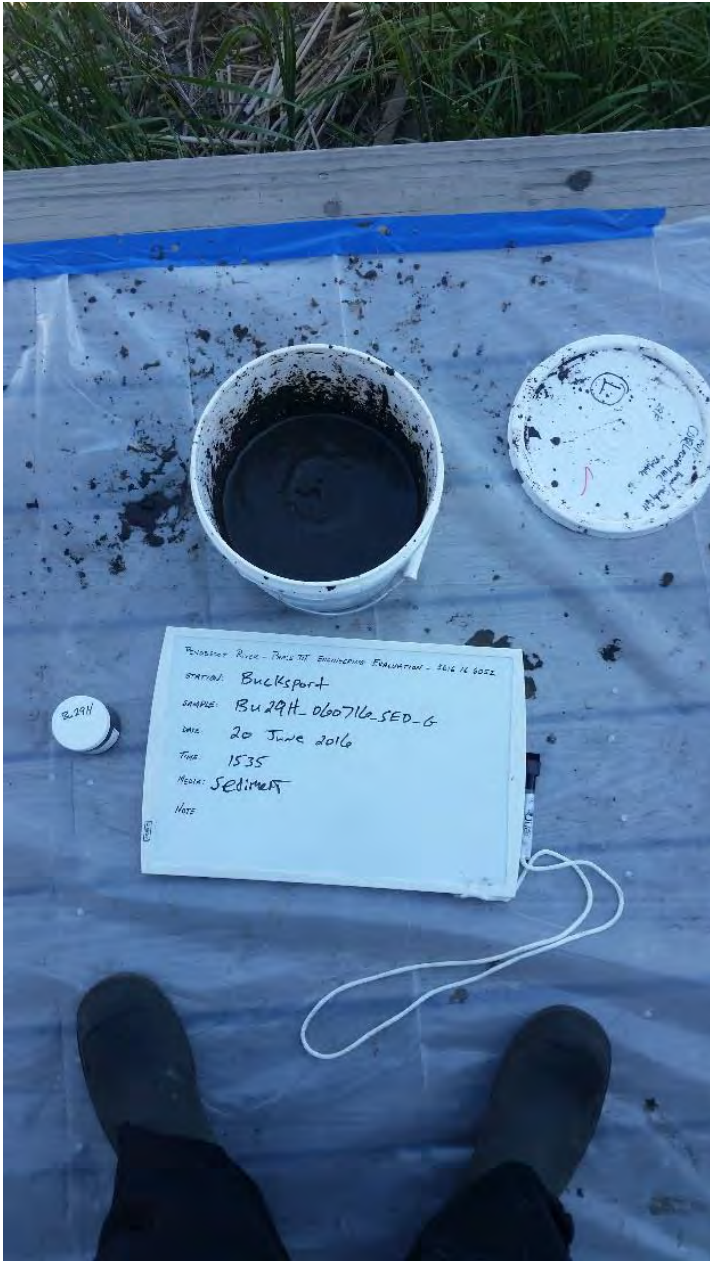


PHOTO 11:



PHOTO 12:





PHOTO 13:



PHOTO 14:



PHOTO 15:

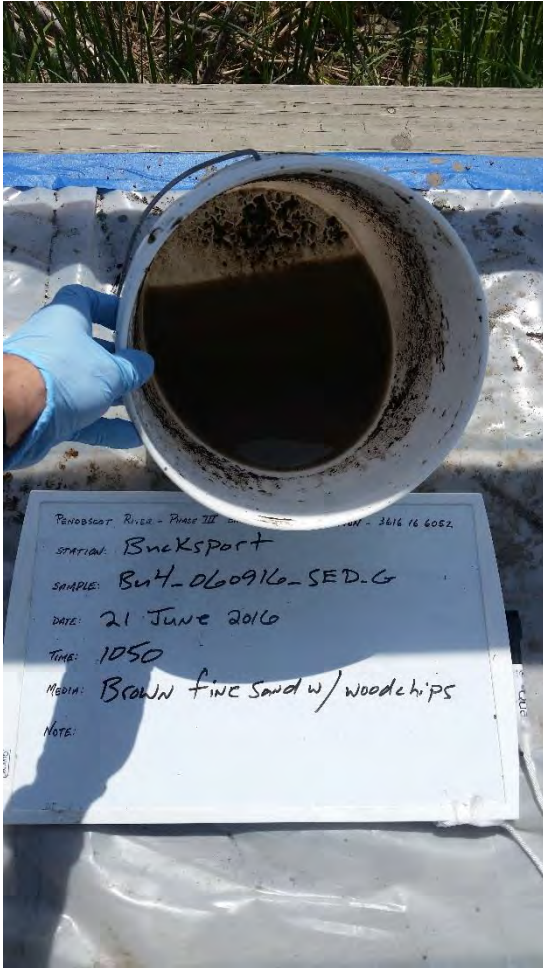


PHOTO 16:

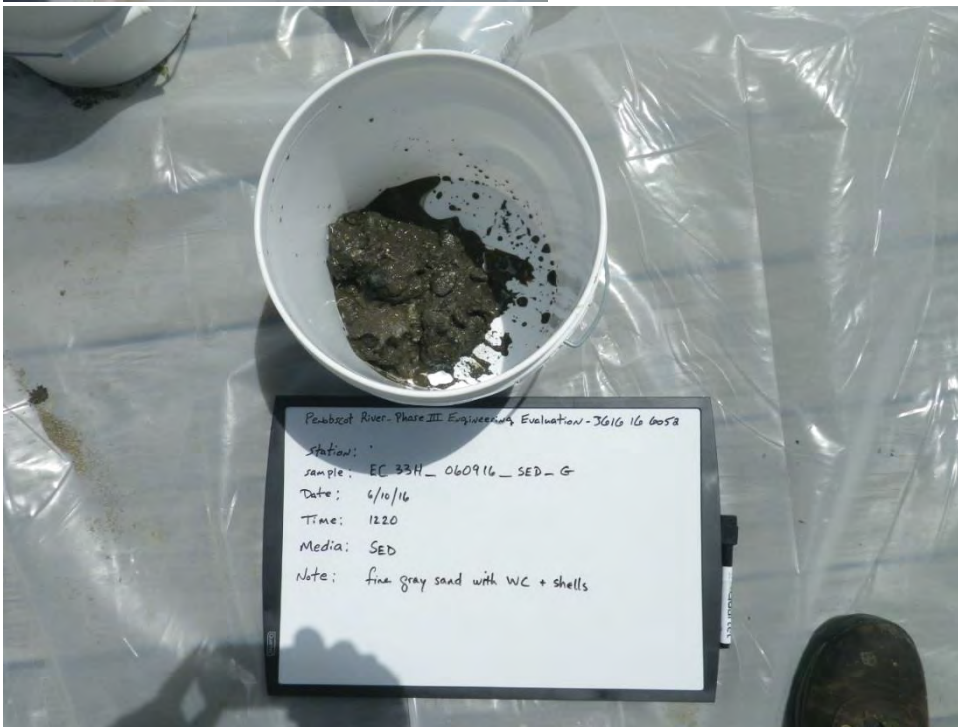
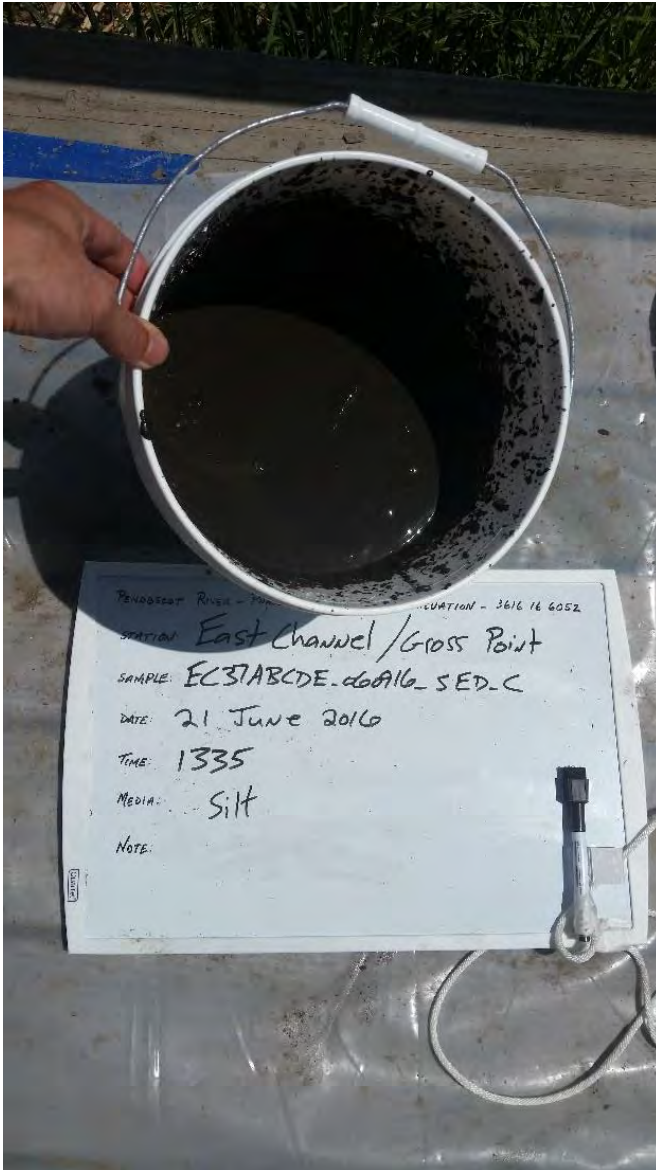




PHOTO 17:



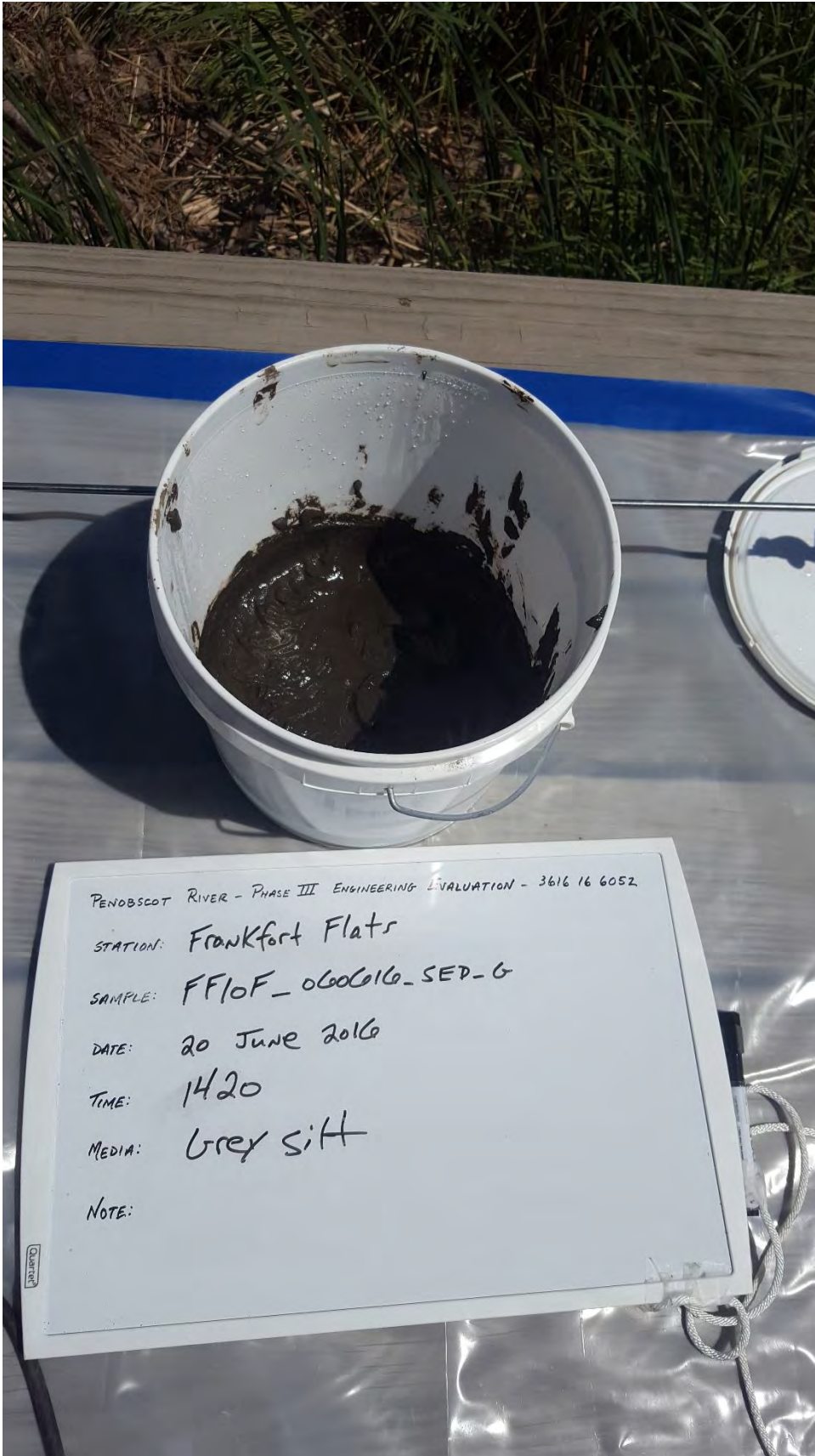


**PHOTO 18:**

Grey silt in East  
Channel sample



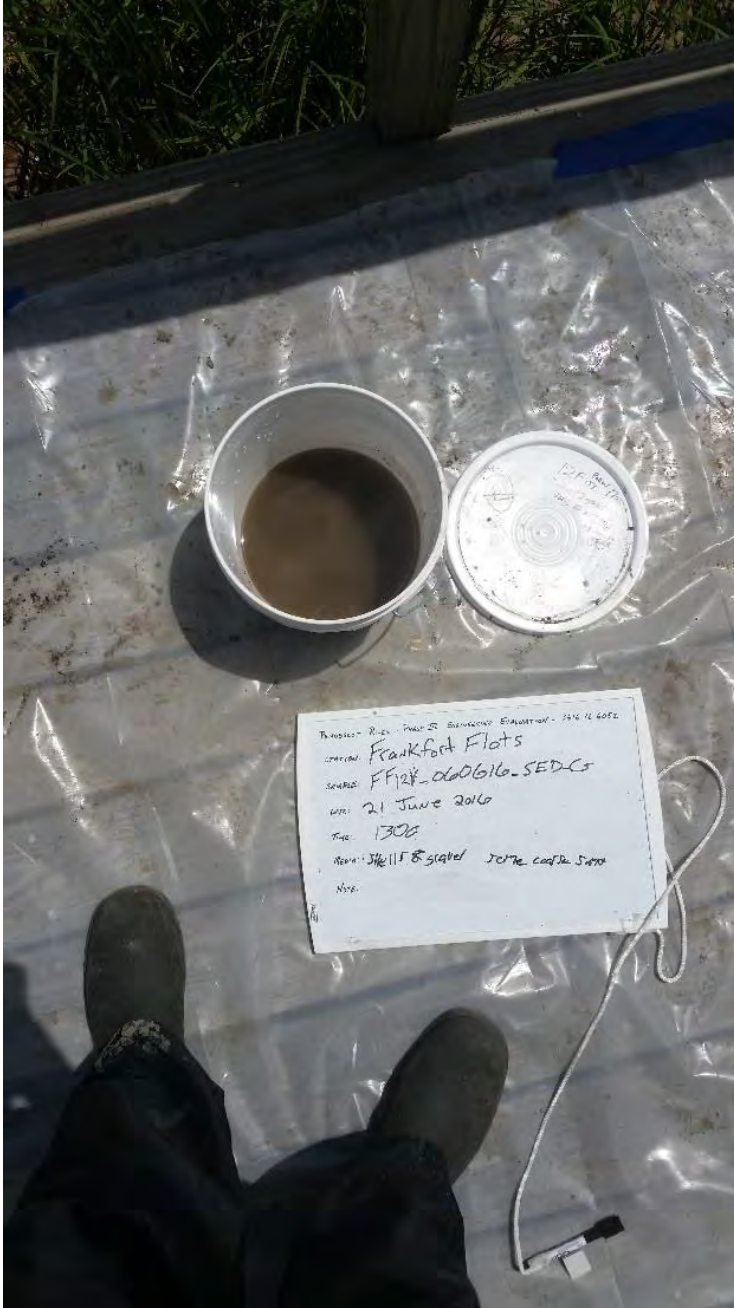
PHOTO 19:





**PHOTO 20:**

Brown silt with gravel in  
Frankfort Flats sample



**PHOTO 21:**

Brown silt and gravel  
with some coarse sand  
in Frankfort Flats  
sample





**PHOTO 22:**

Gray coarse sand with  
wood chips in Frankfort  
Flats sample

PHOTO 23:





**PHOTO 24:**

Black fine sand with  
some silt in Frankfort  
Flats sample



PHOTO 25:



PHOTO 26:

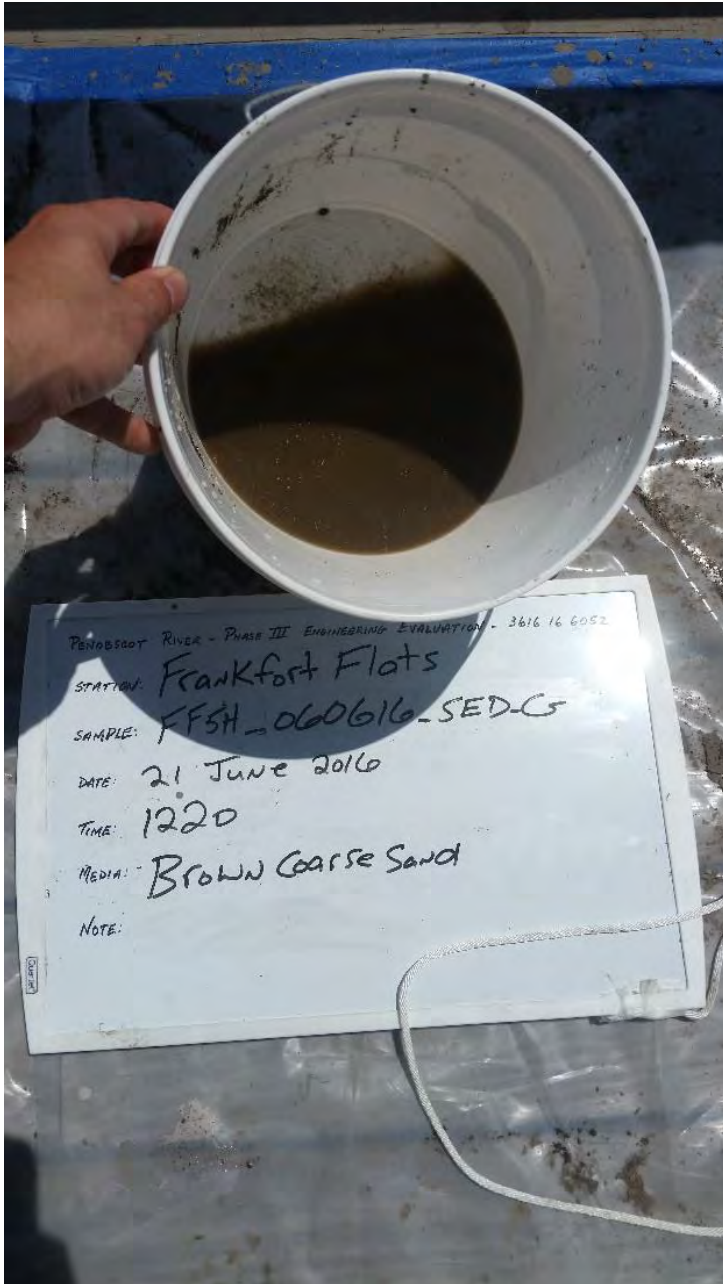
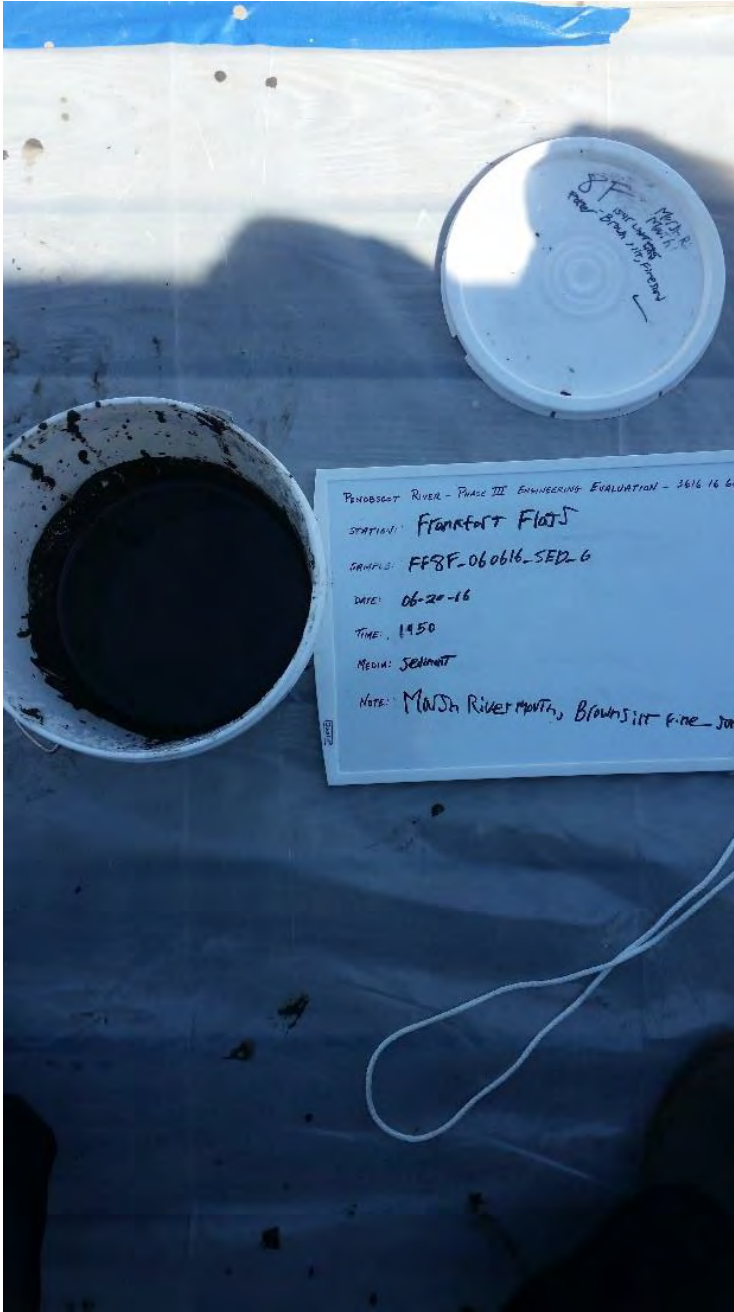


PHOTO 27:

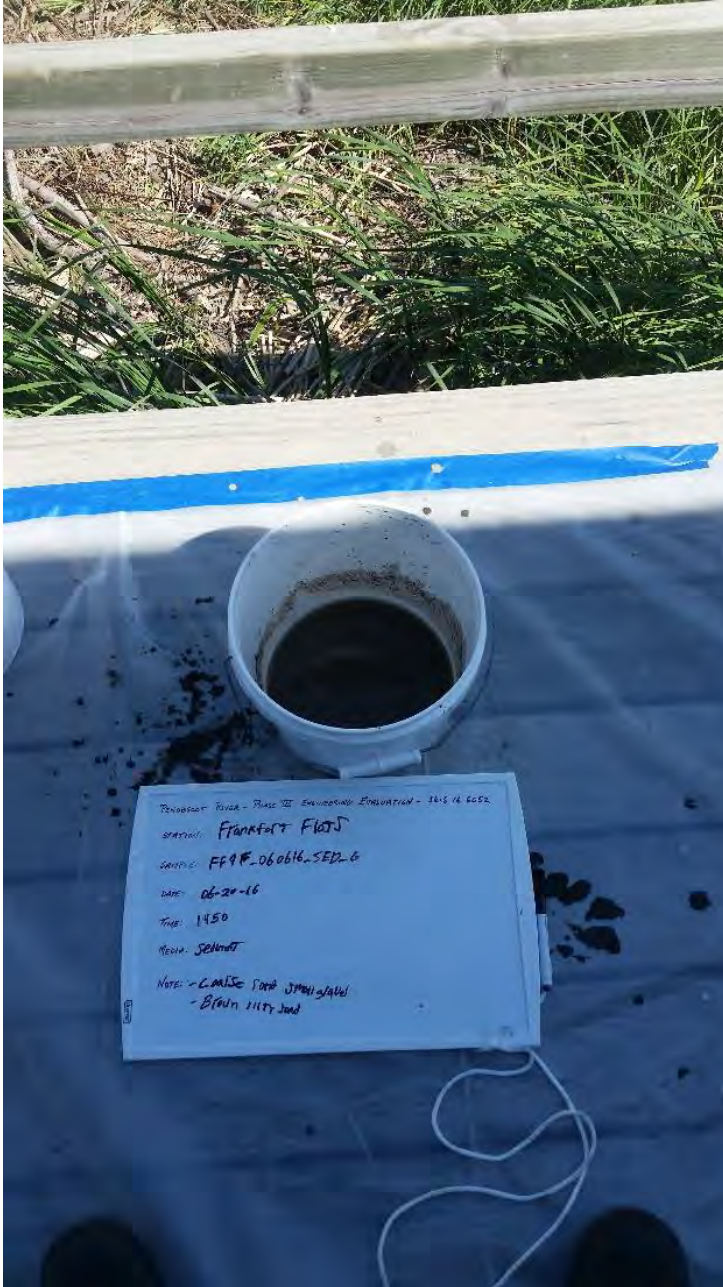




**PHOTO 28:**

Brown silt and fine sand near Marsh River mouth in Frankfort Flats sample

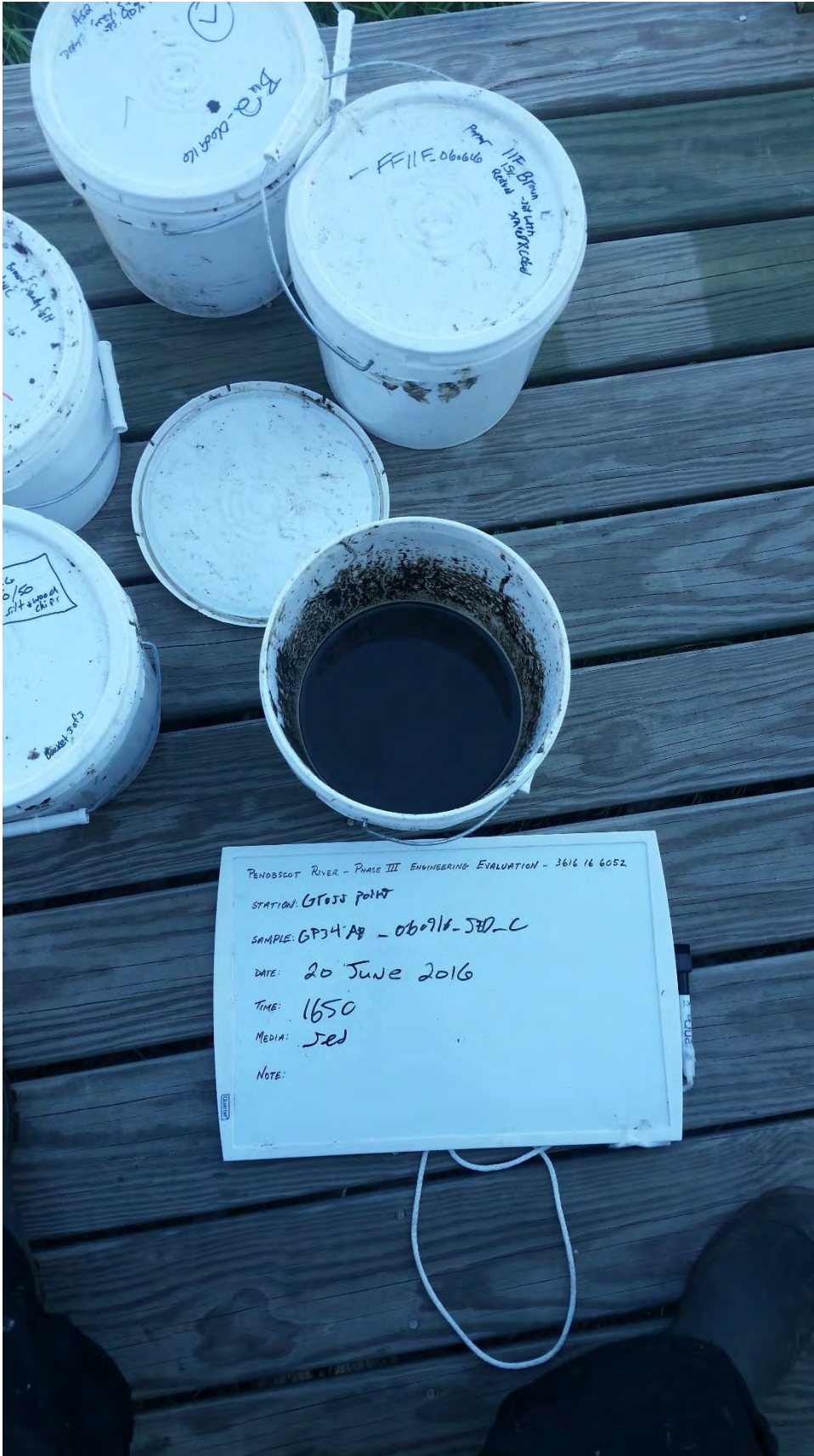




**PHOTO 29:**

Brown silty sand with  
some gravel in  
Frankfort Flats sample

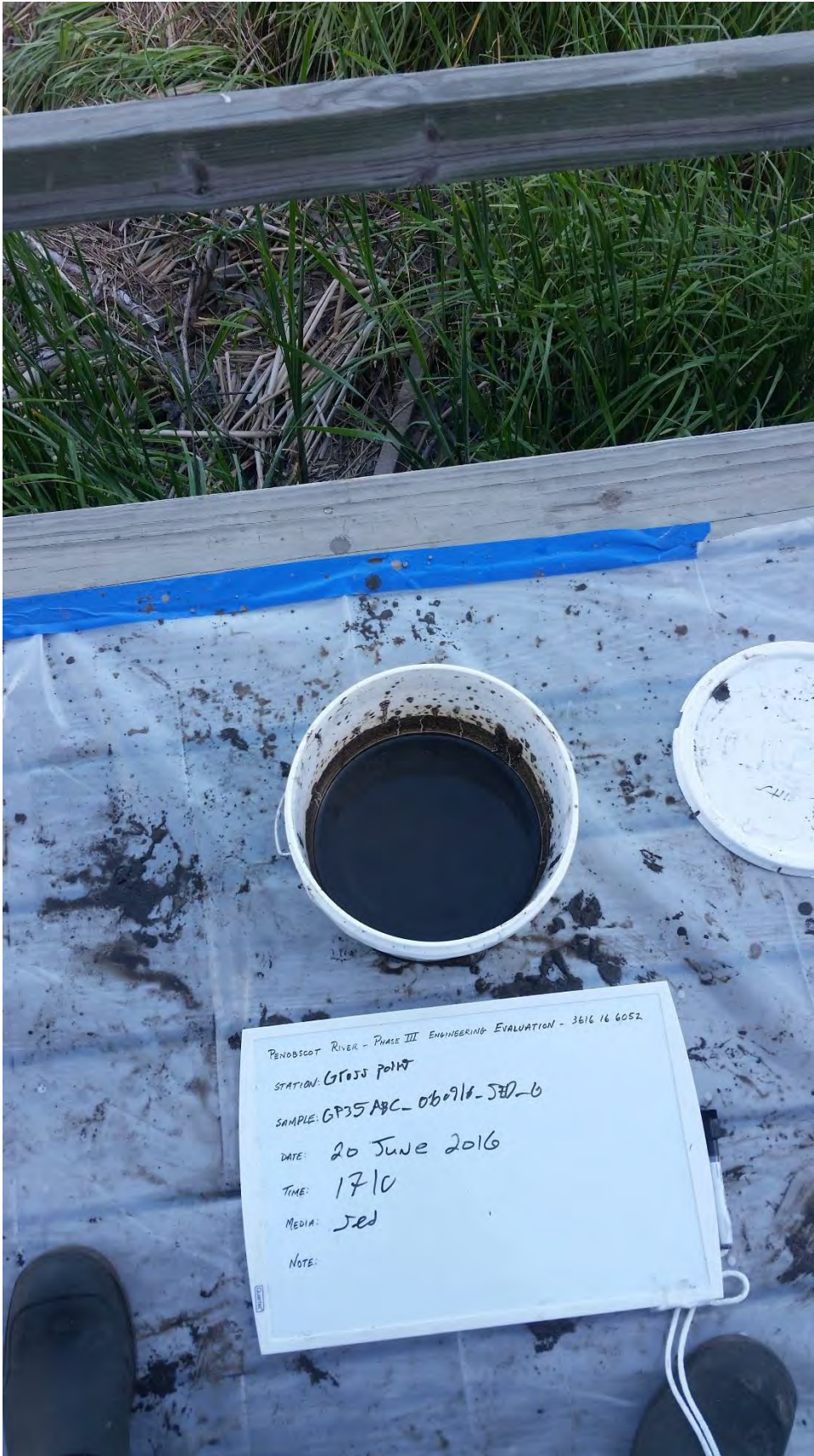




**PHOTO 30:**

Black silt in Gross Point sample

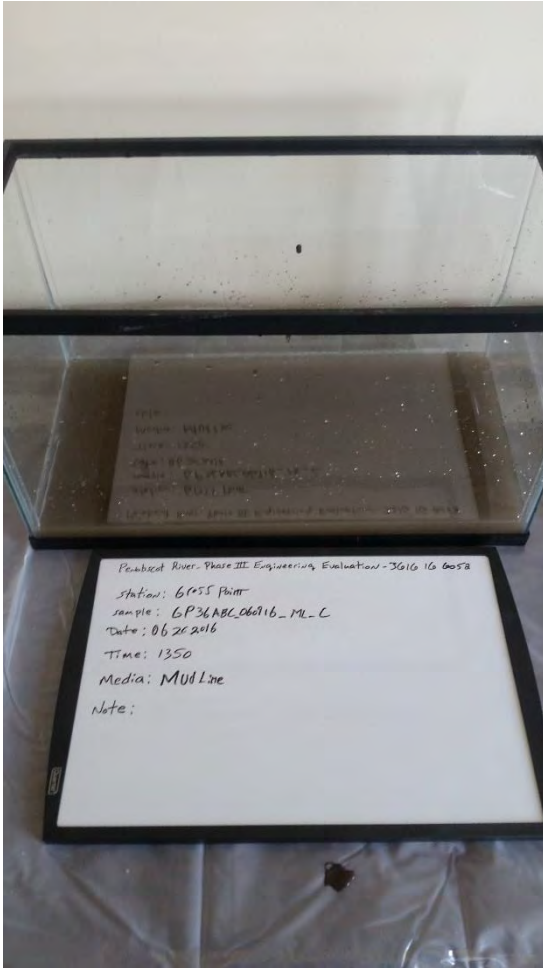




**PHOTO 31:**

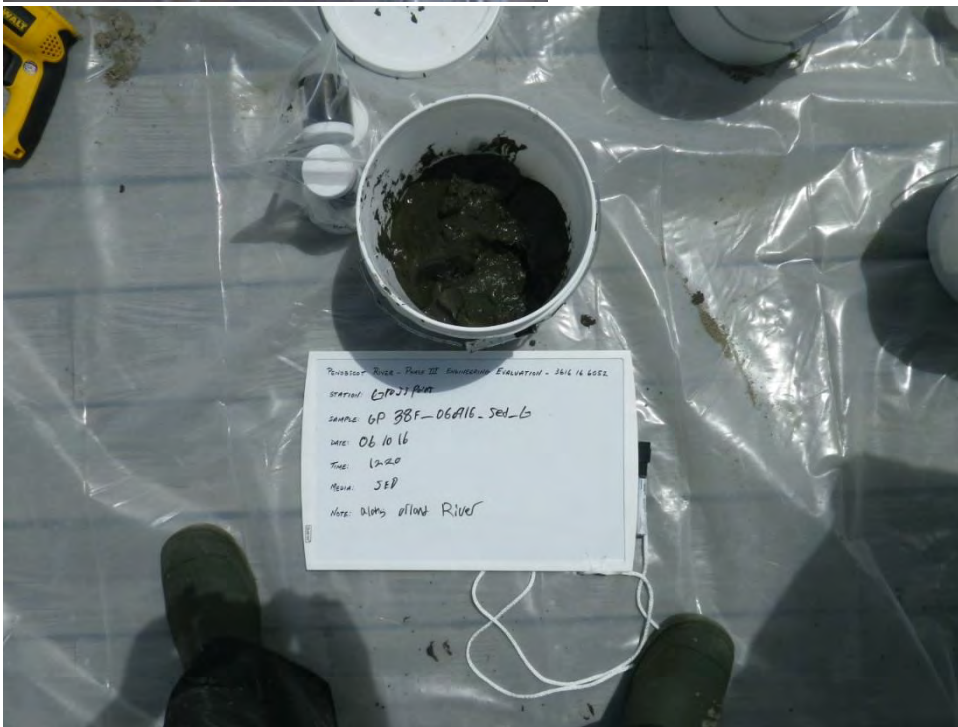
Black silt in Gross Point sample

PENOBSCOT RIVER - PHASE III ENGINEERING EVALUATION - 3616 16 6052  
STATION: GROSS POINT  
SAMPLE: GP35A9C-060916-JED-6  
DATE: 20 June 2016  
TIME: 1710  
MEDIA: JED  
NOTE:



**PHOTO 32:**

Settlement of Gross Point experimental mudline sample before sampling into laboratory containers



**PHOTO 33:**

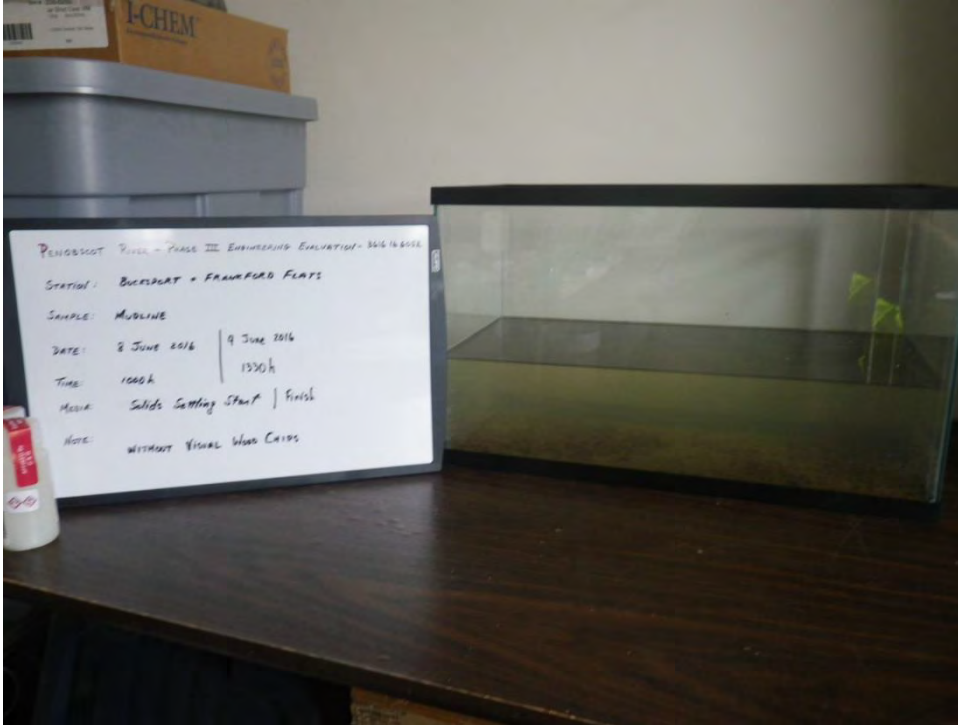
Brown silt near Orland River in Gross Point sample





**PHOTO 34:**

Sample  
homogenization  
process for duration of  
5 minutes per sample



**PHOTO 35:**

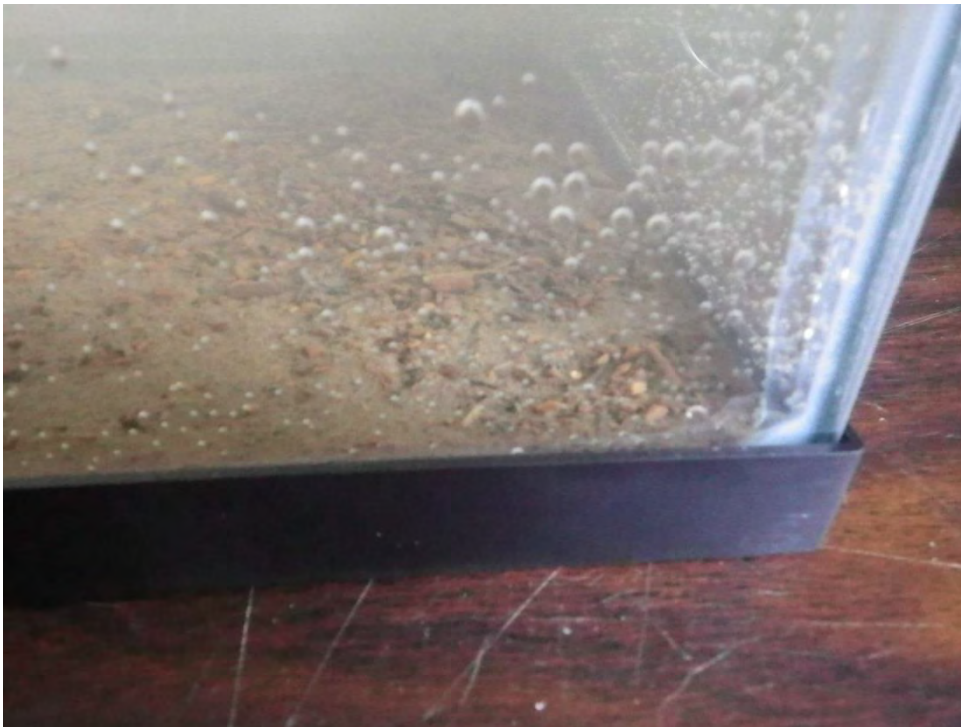
Settlement of Bucksport and Frankfort Flats composite experimental mudline sample before sampling into laboratory containers



**PHOTO 36:**

Close-up of Bucksport and Frankfort Flats composite experimental mudline sample. Note wood chip material above inorganic sediment





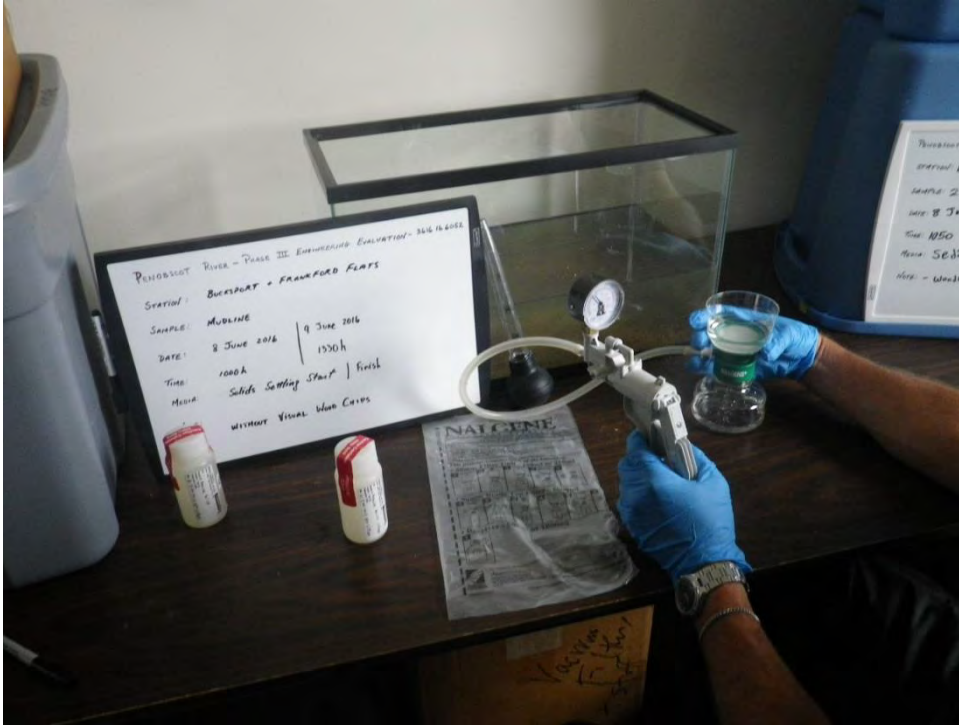
**PHOTO 37:**

Close-up of Bucksport and Frankfort Flats composite experimental mudline sample. Note wood chip material above inorganic sediment



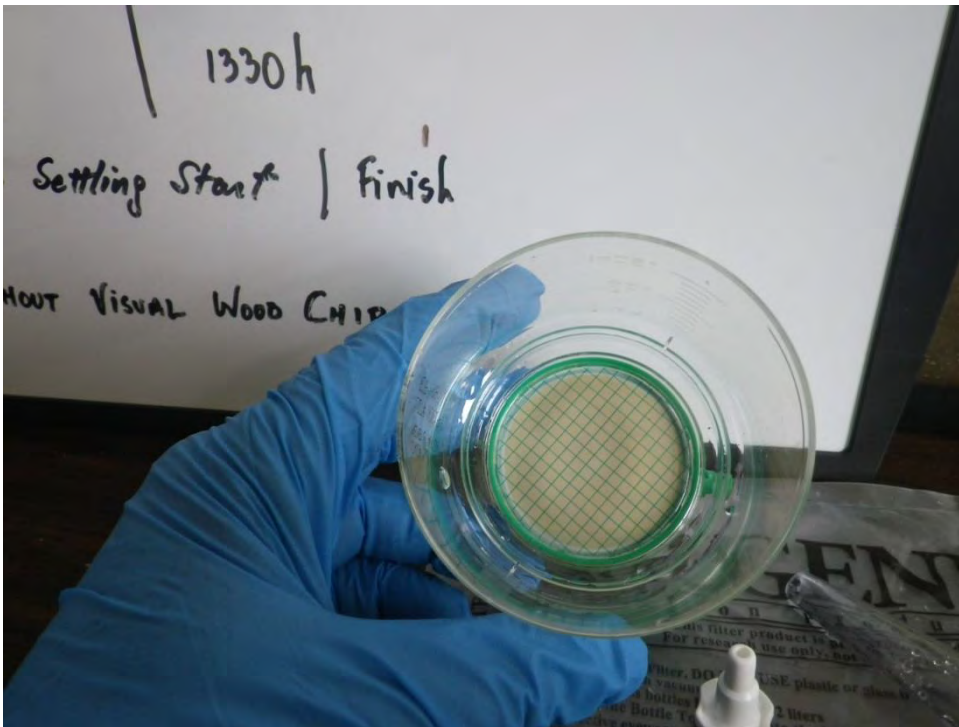
**PHOTO 38:**

Close-up of Bucksport and Frankfort Flats composite experimental mudline sample. Note wood chip material above inorganic sediment



**PHOTO 39:**

Filtration process of liquid sample taken above mudline sediments



**PHOTO 40:**

Discoloration of filter showing removal of particulates from filtered liquid sample

PHOTO 41:

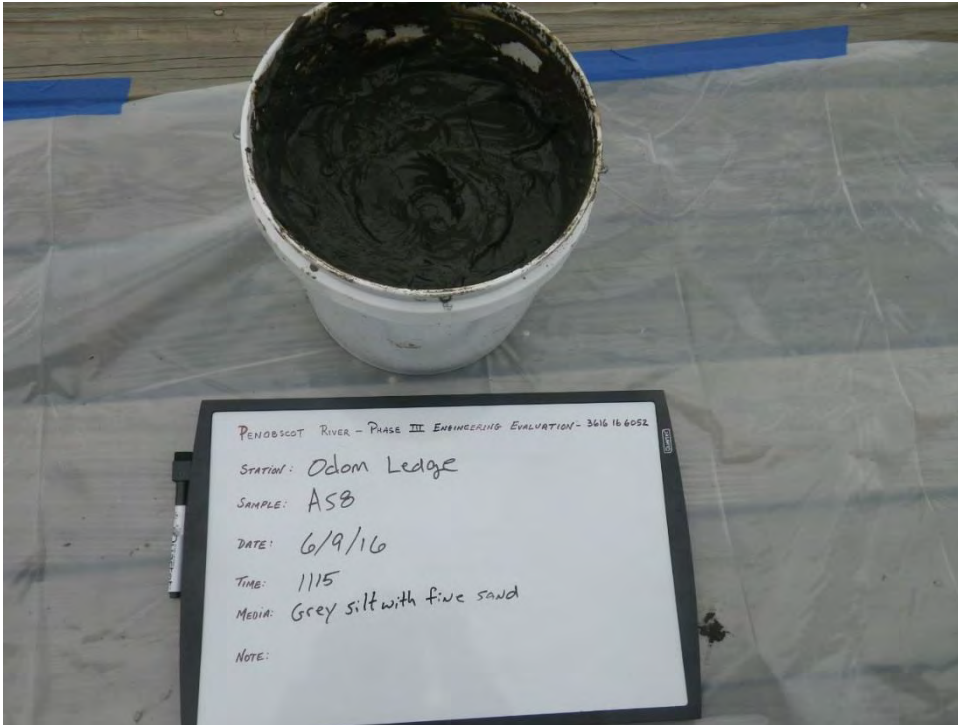


PHOTO 42:

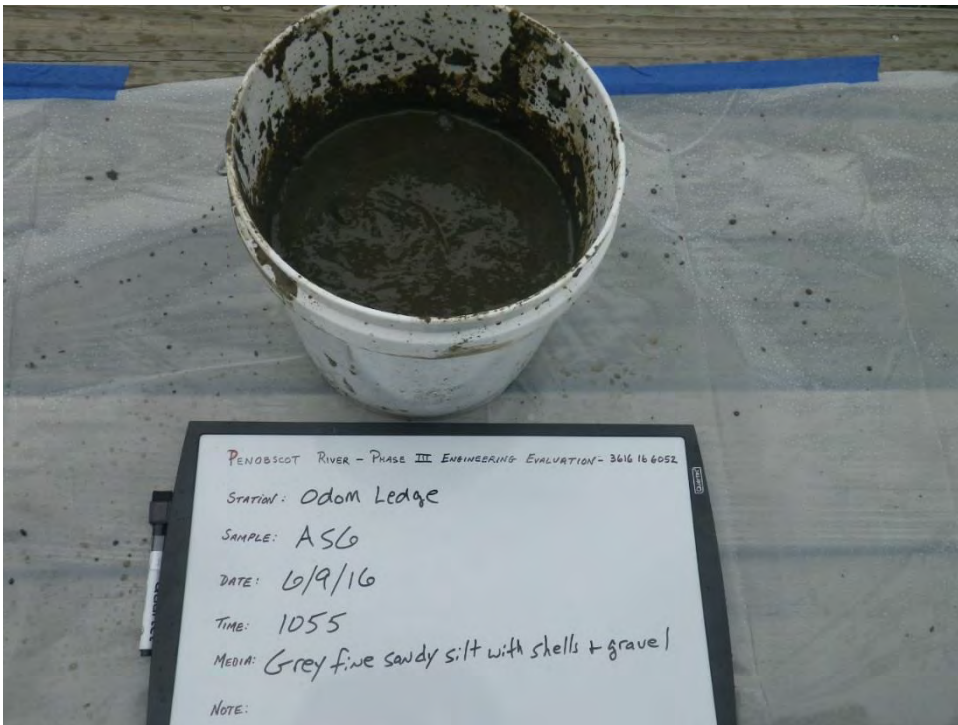




PHOTO 43:

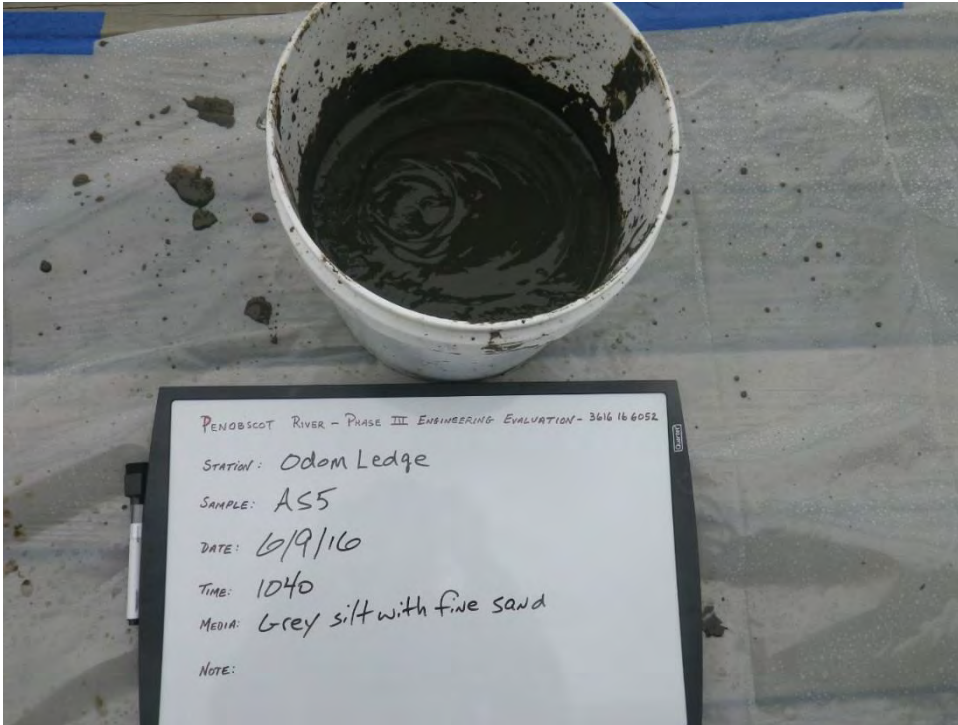


PHOTO 44:

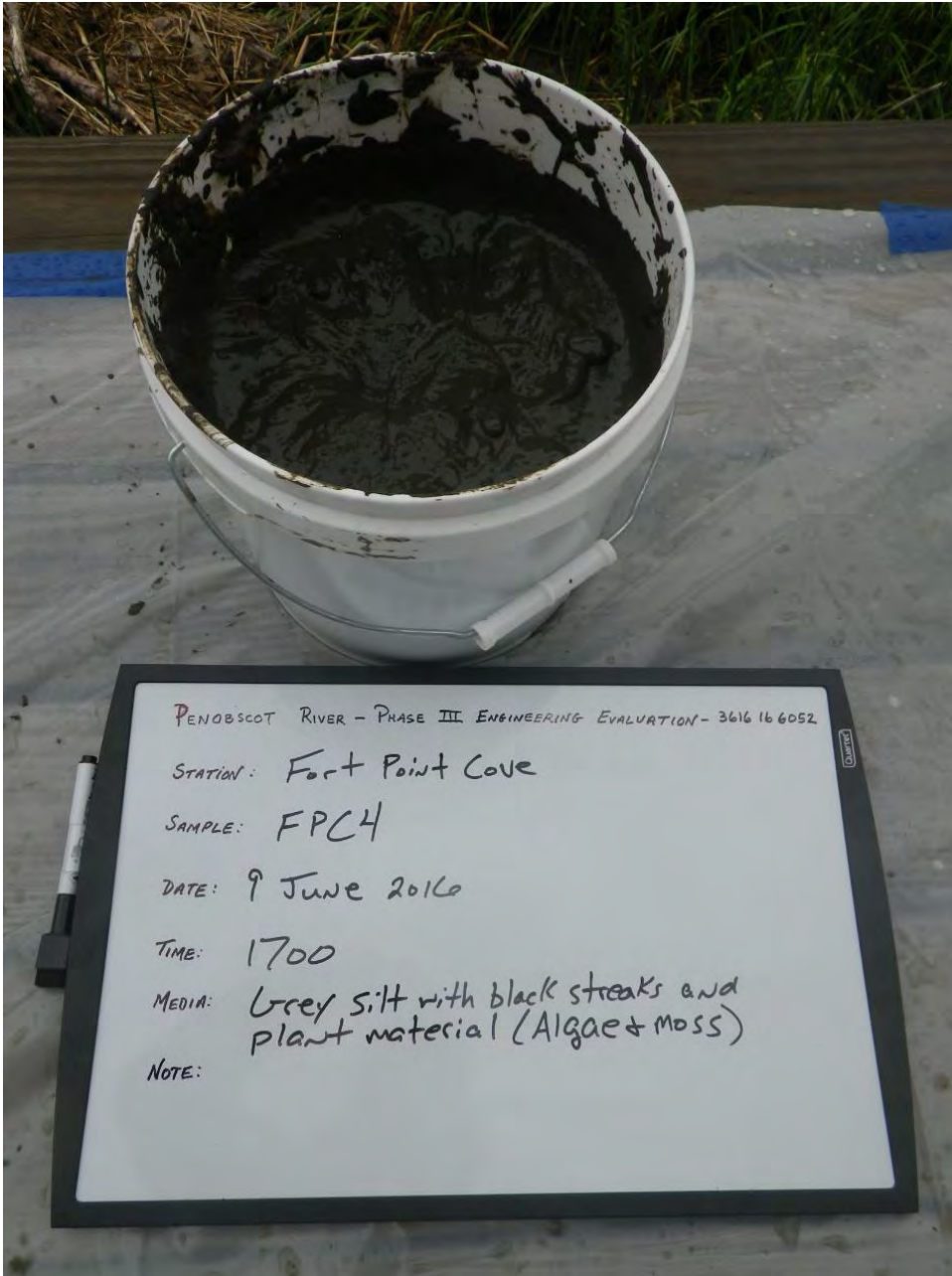




PHOTO 45:

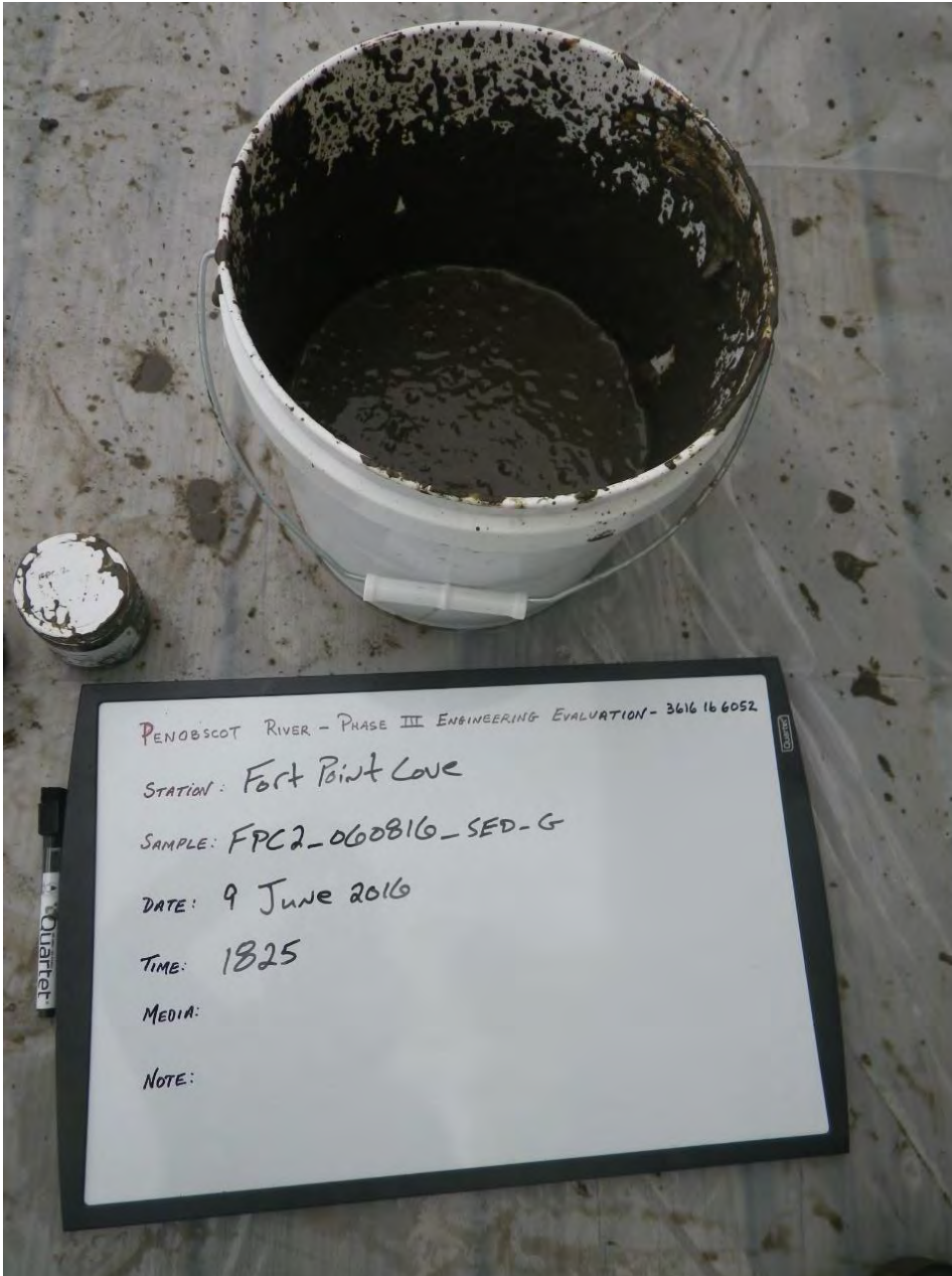
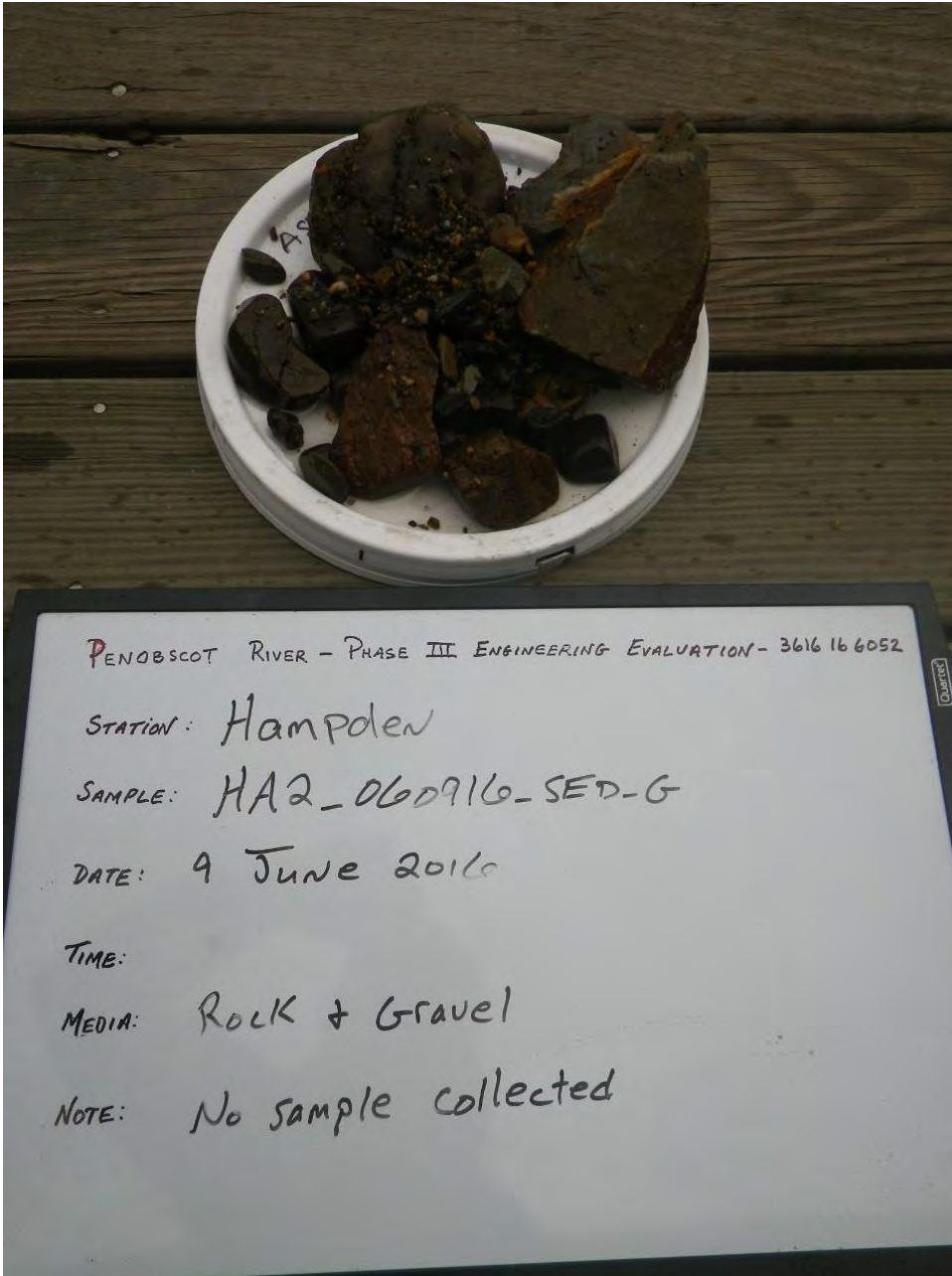
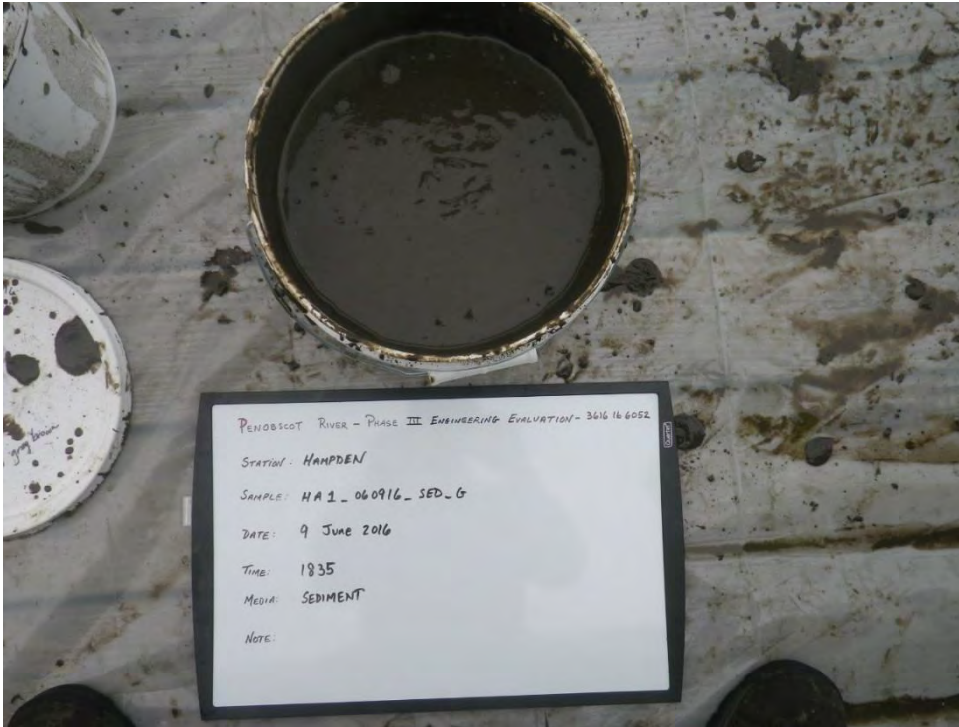


PHOTO 46:

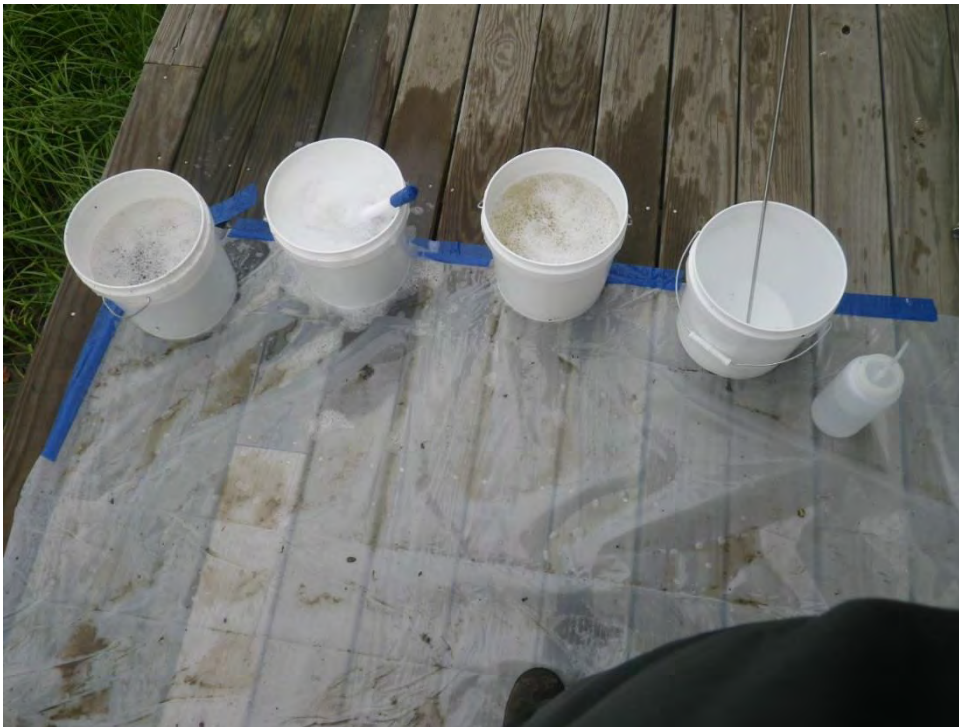




**PHOTO 47:**

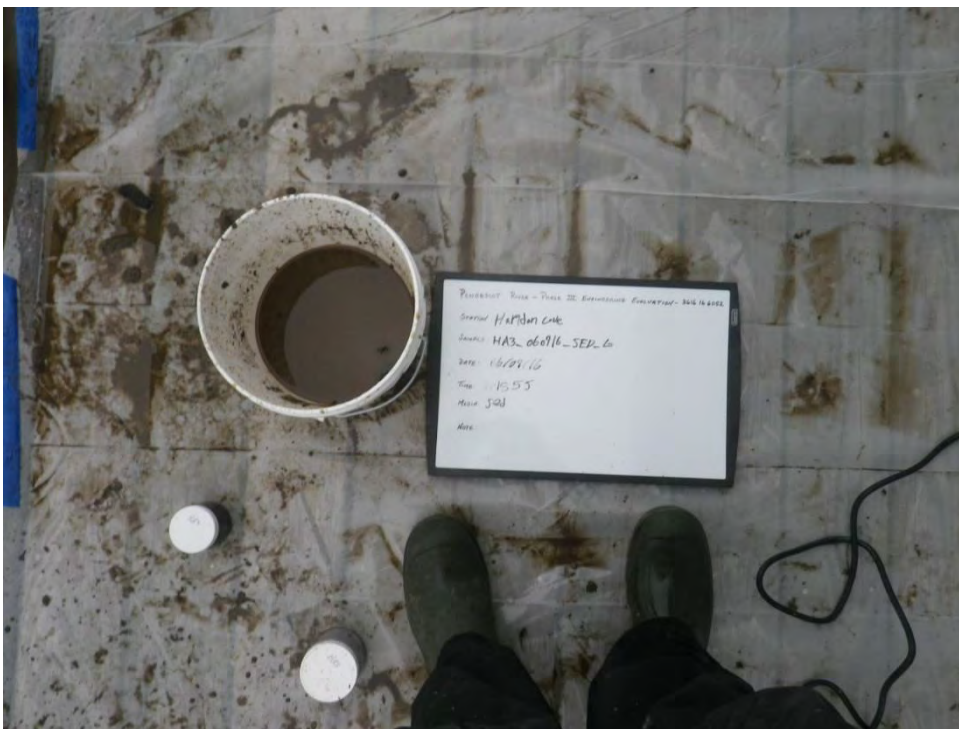
Brown silt in Hampden  
sample





**PHOTO 48:**

Decontamination fluids (e.g., river rinse water, river water and liquinox mix, river water rinse, and deionized water rinse) used to decontaminate equipment used for sample homogenization



**PHOTO 49:**

Brown silt in Hampden sample

PHOTO 50:

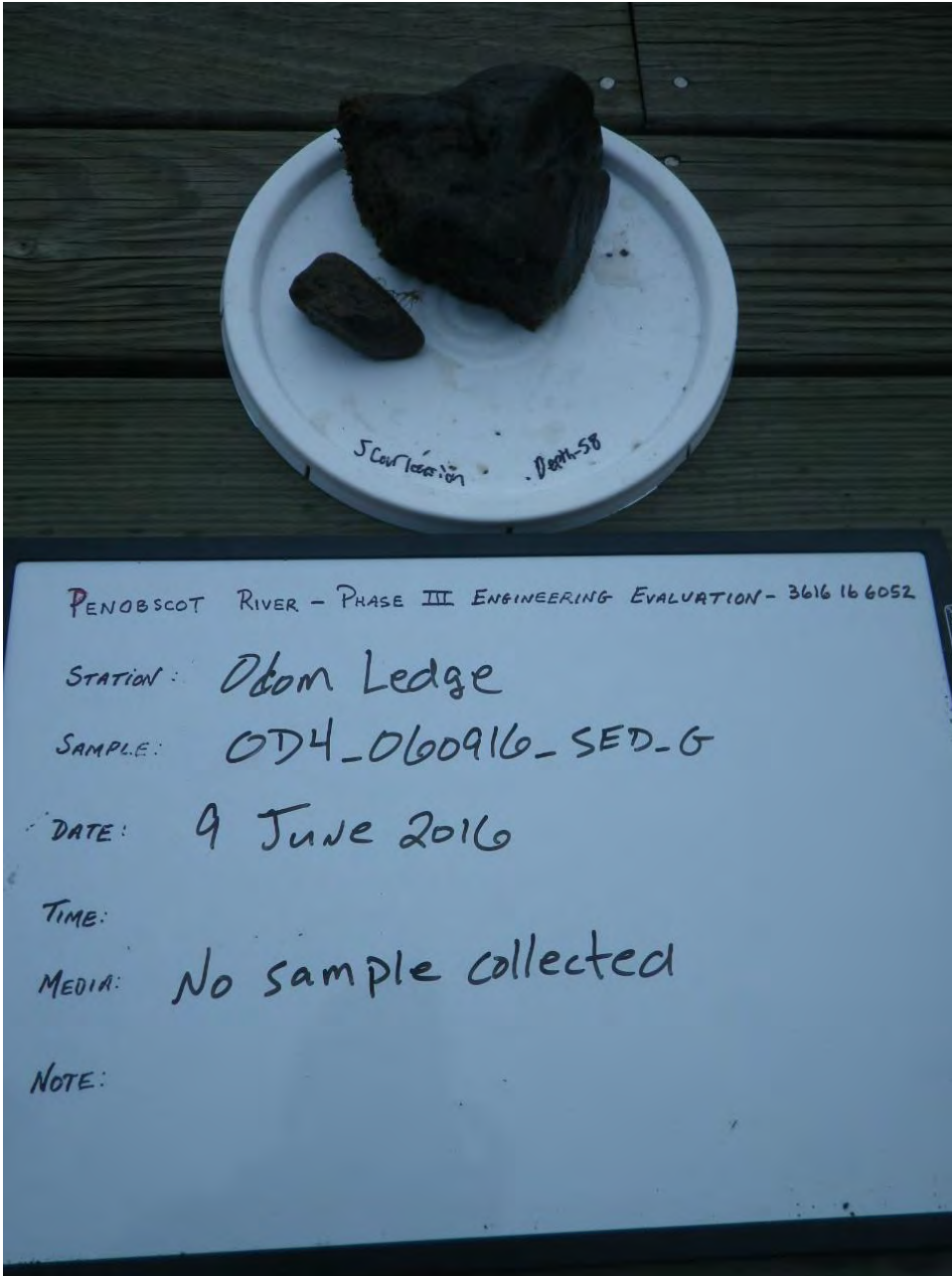
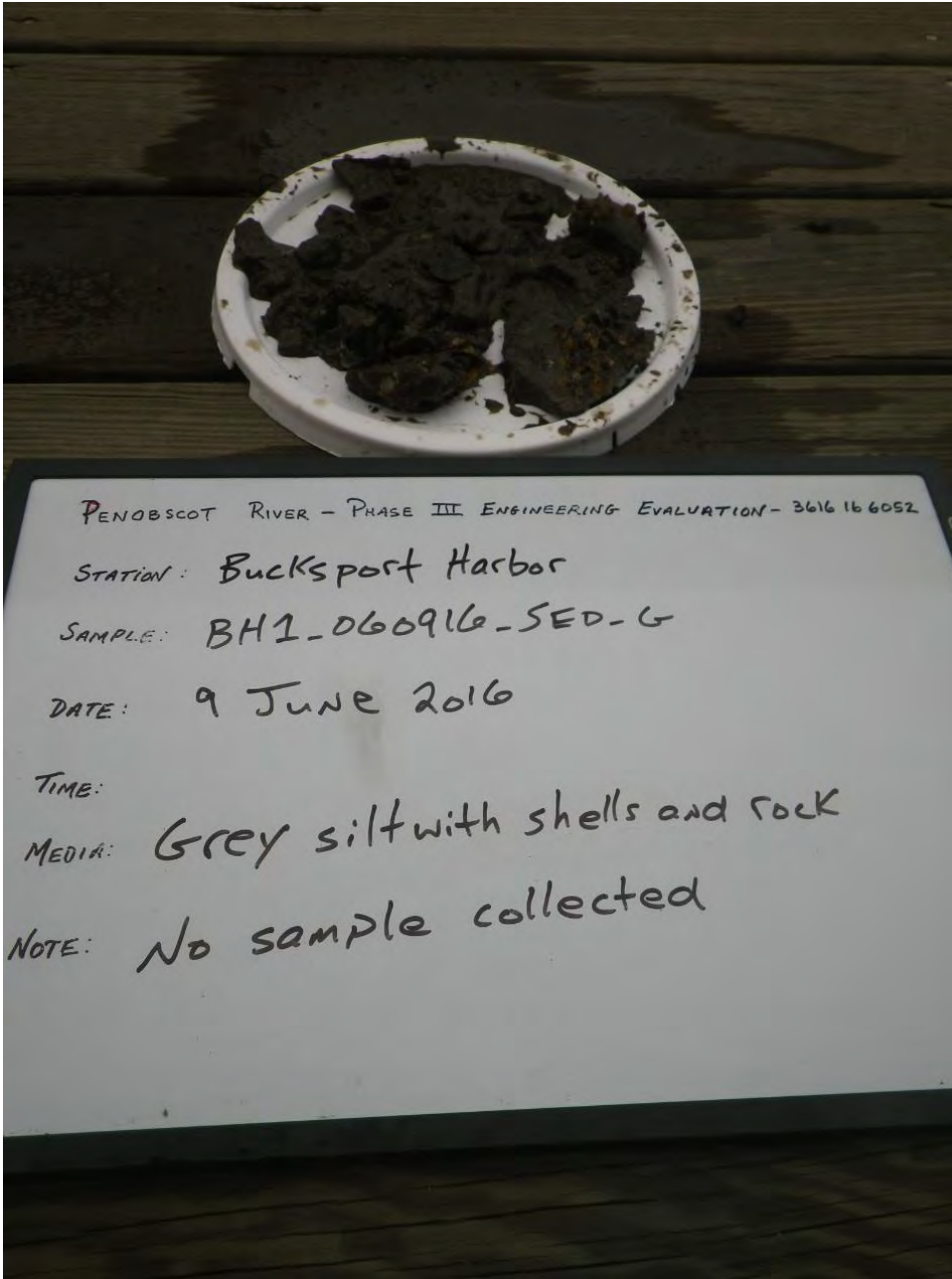




PHOTO 51:



## **APPENDIX C2**

### **Work Order 3A: Photo Log**



**PHOTO 1:**

Intertidal mudflat with intermingled wood waste and base sediment in rivulet near GPS point FF200-INT (in Frankfort Flats Reach) on October 11, 2016



**PHOTO 2:**

Intertidal mudflat with intermingled wood waste and base sediment near GPS point FF200-INT (in Frankfort Flats Reach) on October 11, 2016





**PHOTO 3:**

On large mudflat in Lawrence Cove in the Bucksport Reach with abundant wood waste material deposited



**PHOTO 4:**

New/mobile sediment and old/immobile sediment interfaces near GPS point EC109-INT (in the Verona Northeast Reach) from October 12, 2016





**PHOTO 5:**

Intertidal mudflat with deposited wood waste material near GPS point EC108-INT South of Porcupine Island in the Verona Northeast Reach on October 12, 2016



**PHOTO 6:**

Intertidal mudflat with intermingled wood waste and base sediment in rivulet near GPS point FF200-INT (in Frankfort Flats Reach) on October 11, 2016





**PHOTO 7:**

Horizontal mixing of wood waste along the edge of the mud and surf line in Frankfort Flats Reach



**PHOTO 8:**

Horizontal mixing along the edge of the mud and surf line in Mendall Marsh Reach





**PHOTO 9:**

"New mud" collected with ponar



**PHOTO 10:**

"New mud" with intermingled wood waste in Cape Jellison Reach



**PHOTO 11:**

Polychaete in old/immobile and new/mobile sediment interface in the Mendall Marsh Reach near GPS Point MM-Core103B on October 7, 2016



**PHOTO 12:**

Bulk core, MM-Core105B, in the Mendall Marsh Reach on October 7, 2016





**PHOTO 13:**

Algae bloom on intertidal flat in Orland River Reach near GPS Point OR102-INT on October 12, 2016



**PHOTO 14:**

Large intertidal flat in Orland River Reach near GPS point OR 102-INT facing a cove to the east toward Castine Road with scattered wood waste deposited sporadically deposited on it





**PHOTO 15:**

Large intertidal flat in Orland River Reach near GPS point OR 108-INT facing the cove to the west of the Orland Dam with scattered wood waste deposited



**PHOTO 16:**

Supplementary visual assessment for GPS point WP-3 in the Winterport Reach on October 10, 2016 showing wood waste deposited on the large mud flat and horizontal mixing on the mud and surf line interface



**PHOTO 17:**

Supplementary visual assessment for GPS point WP-3 in the Winterport Reach on October 10, 2016 showing wood waste deposited on the large mud flat and horizontal mixing on the mud and surf line interface



**PHOTO 18:**

Supplementary visual assessment for GPS point WP-3 in the Winterport Reach with wood waste retained on the #10 sieve





**PHOTO 19:**

Supplementary visual assessment for GPS point WP-3 in the Winterport Reach with wood waste retained in plankton net



**PHOTO 20:**

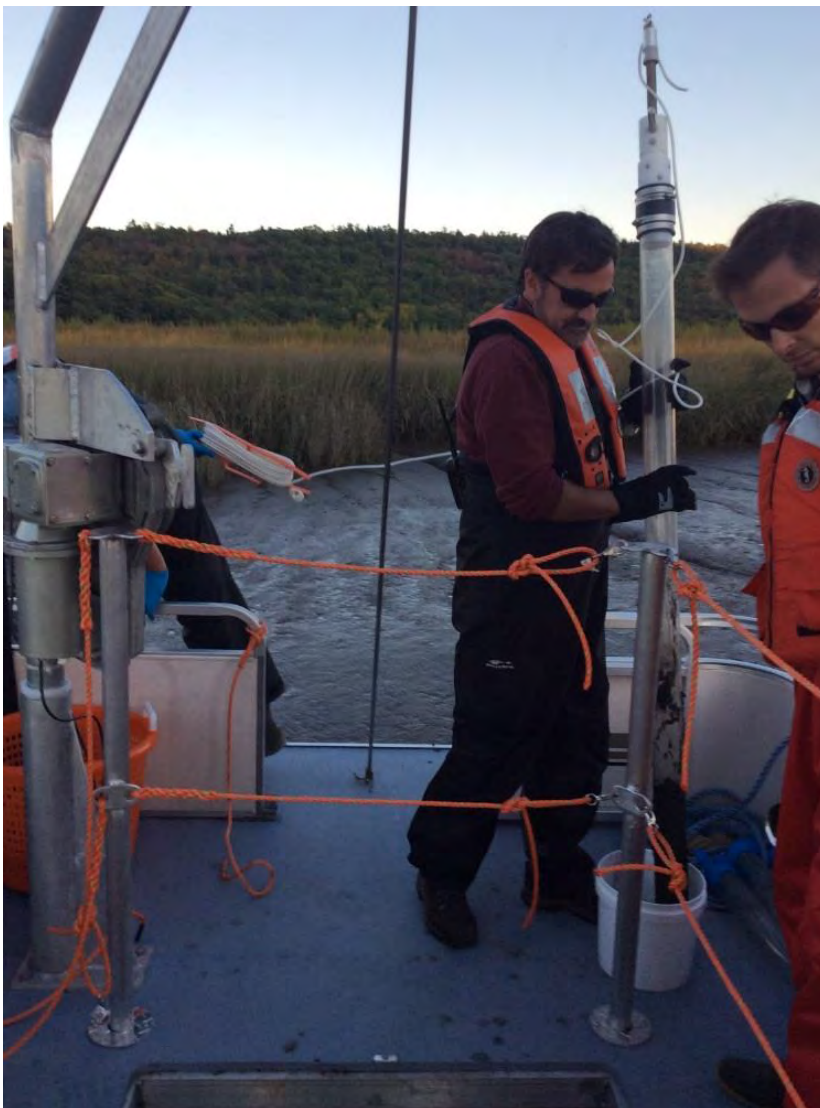
Rebar and wood stake markers in the Winterport Reach near GPS Points "Wood Stakes 01" and "Rebar01" that was used to visually track the movement of rivulets on October 14, 2016





**PHOTO 21:**

Rebar and wood stake markers in the Winterport Reach near GPS Points "Wood Stakes 01" and "Rebar01" that was used to visually track the movement of rivulets on October 19, 2016



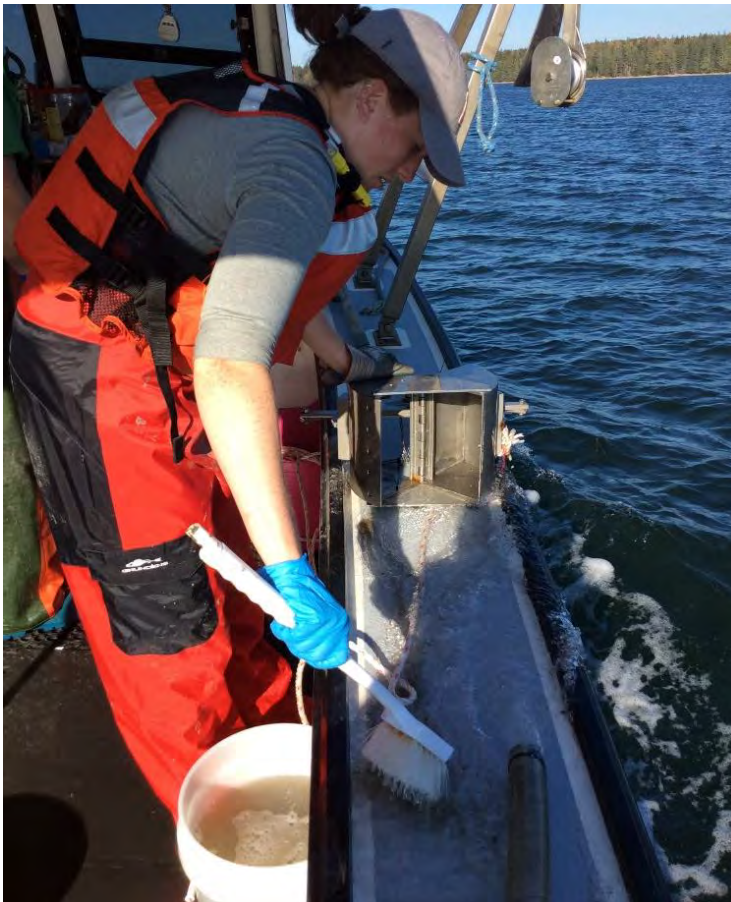
**PHOTO 22:**

Bulk hard push core collection on Pamola



**PHOTO 23:**

Ponar sample collection off the Pamloa with wench



**PHOTO 24:**

Decontamination of the ponar on First Team





**PHOTO 25:**

Wood waste retained in eel trap during biota event



**PHOTO 26:**

Amec-04 Trap on October 5, 2016 at 12:45pm near Frankfort Flats (Trial run with not GPS point recorded)





**PHOTO 27:**

Wood waste in sheet lined sediment trap



**PHOTO 28:**

Trap sample, BU\_Trap10, attained in the Bucksport Reach near green can #9 at GPS point "Bucksport13"





**PHOTO 29:**

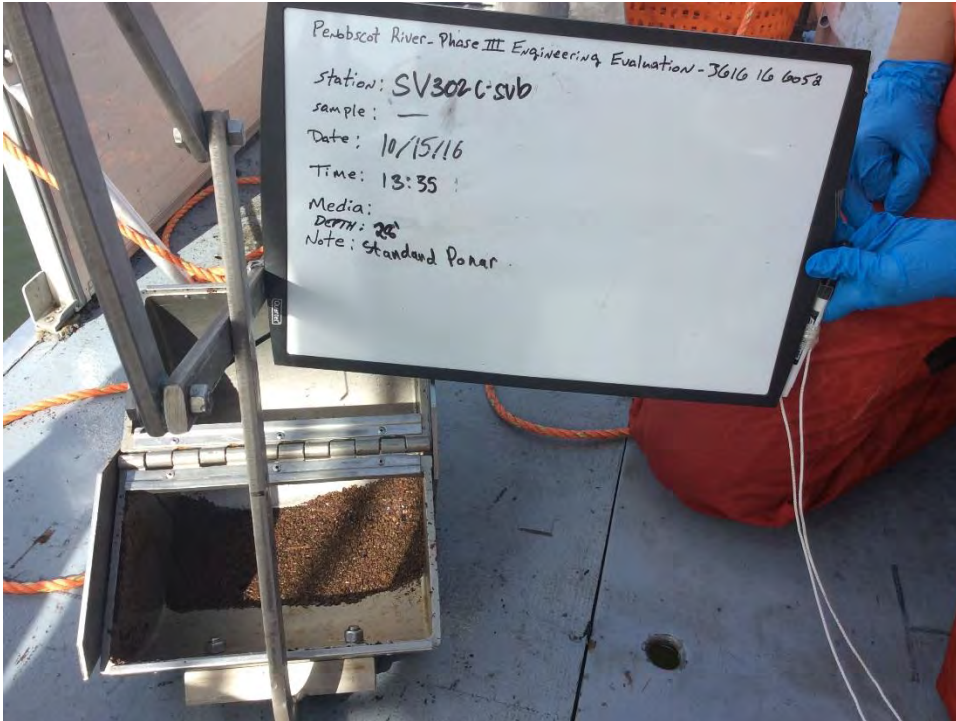
Burlap covered trap  
set-up



**PHOTO 30:**

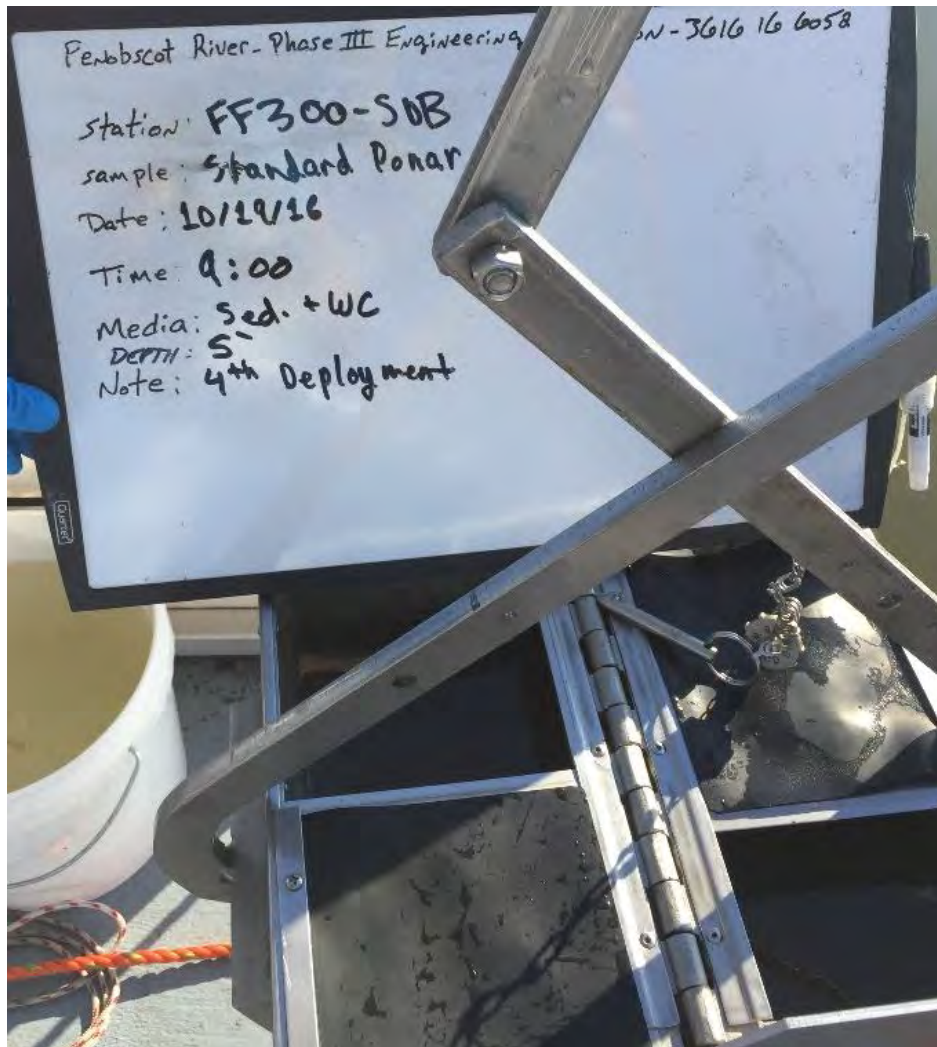
Grab sample HB-01  
collected on October 7,  
2016 in Cape Jellison





**PHOTO 31:**

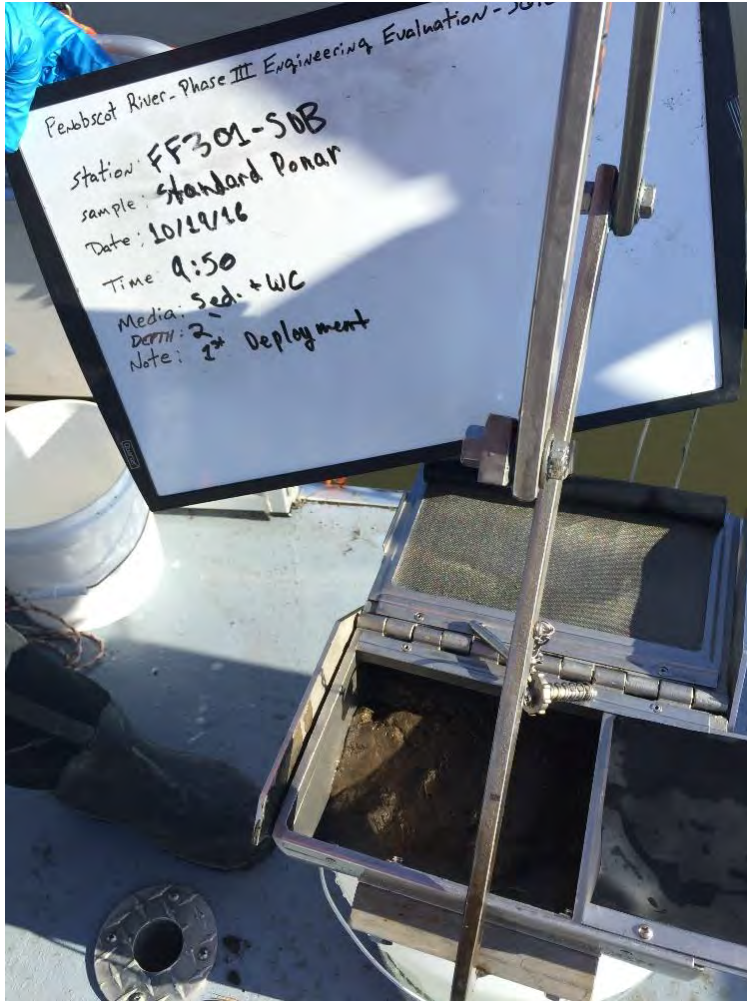
Bulk grab sample SV302C-Sub / VE55 collected in the Verona East Reach thalweg



**PHOTO 32:**

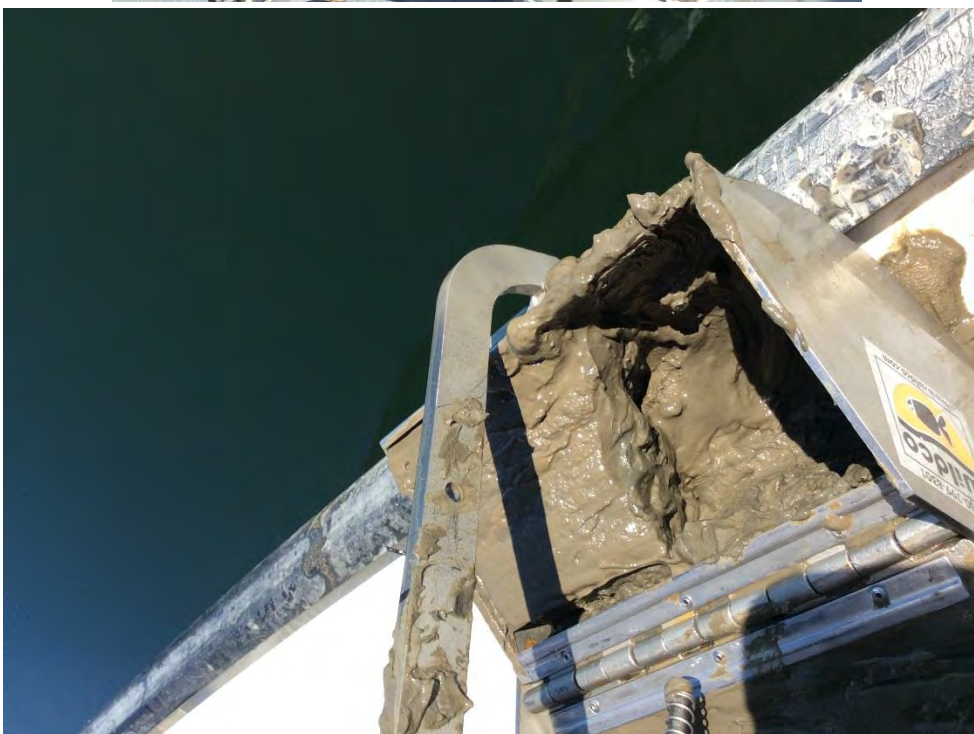
Grab sample FF300-SUB / FF53 was collected in the Frankfort Flats Reach near Drachm Point and the edge of the large intertidal flat





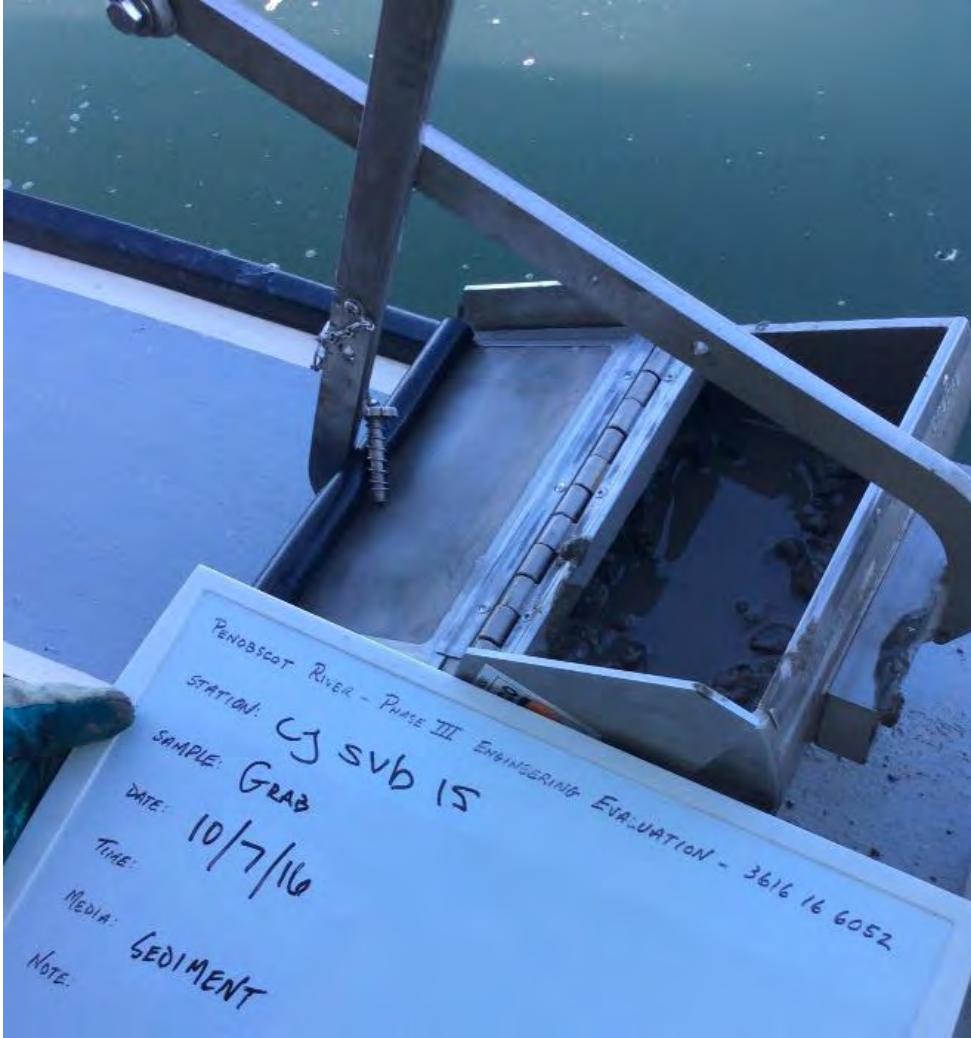
**PHOTO 33:**

Grab sample FF301-SUB / FF54 was collected in the Frankfort Flats Reach near the middle of the right bank large slopping mudflat on the edge of the intertidal and subtidal interface



**PHOTO 34:**

Grab sample CJ-sub-1 / CJ07 collected on October 7, 2016 in the Penobscot Bay in the shipping lane west of the Oil Transfer Area south of the Cape Jellison Reach



**PHOTO 35:**

Grab sample CJ-sub-15 / CJ21 collected on October 7, 2016 in the Penobscot Bay in the shipping lane south of Sears Island and south of the Cape Jellison Reach



**PHOTO 36:**

Grab sample CJ\_SUB16 / CJ08 collected on October 7, 2016 east of Turtle Head on Islesboro Island south of the Cape Jellison Reach





**PHOTO 37:**

Grab sample CJ-Sub 9 / CJ20 collected on October 7, 2016 near the center of the Oil Transfer Area just south of the Cape Jellison Reach



**PHOTO 38:**

Grab sample CJ-INT-1 / CJ14 collected on October 7, 2016 in Morse Cove on an intertidal area in the Upper Penobscot Bay Reach

PENOBSCOT RIVER - PHASE III ENGINEERING EVALUATION - 3616 16 6052  
STATION: CJ-INT-1  
SAMPLE: GRAB  
DATE: 7 Oct 2016  
TIME: 1555  
MEDIA: SEDIMENT  
DEPTH: 9'  
NOTE:





**PHOTO 39:**

Grab sample CJ-Sub 10 / CJ19 collected on October 7, 2016 in the Penobscot Bay in the shipping lane northwest of the Oil Transfer Area south of the Cape Jellison Reach



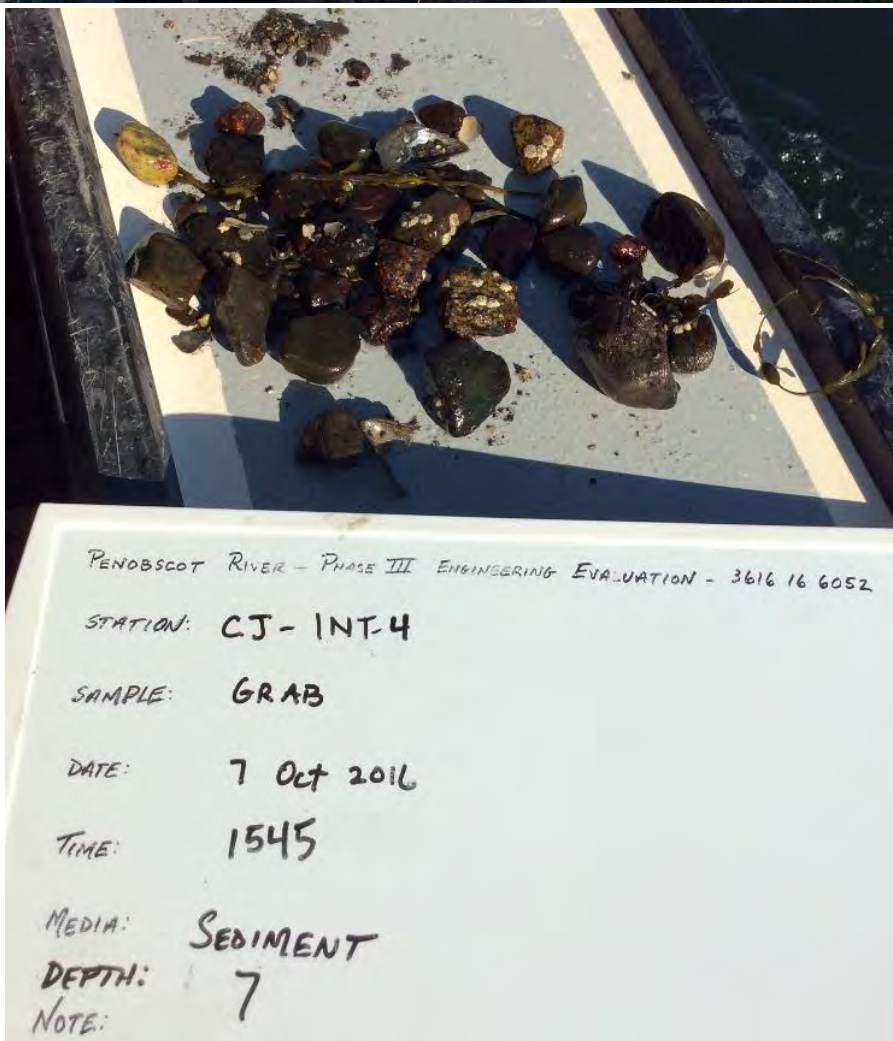
**PHOTO 40:**

Grab sample CJ-Sub 11 / CJ10 collected on October 7, 2016 in the Cape Jellison Reach between shipping lanes



**PHOTO 41:**

Grab sample CJ-INT-2 / CJ15 collected on October 7, 2016 in an intertidal area near Turner Point in the Cape Jellison Reach



**PHOTO 42:**

Bulk grab sample CJ-INT-4 collected on October 7, 2016 near the northwest side of Wilson Point in the Upper Penobscot Bay Reach





**PHOTO 43:**

Grab sample CJ-SSUB-4 / CJ13 collected on October 7, 2016 in a subtidal area of Morse Cove in the Upper Penobscot Bay Reach



**PHOTO 44:**

Grab sample CJ-SUB-13 / CJ11 collected on October 7, 2016 between Turner Point (to the east) and a shipping lane (to the west) in the Cape Jellison Reach





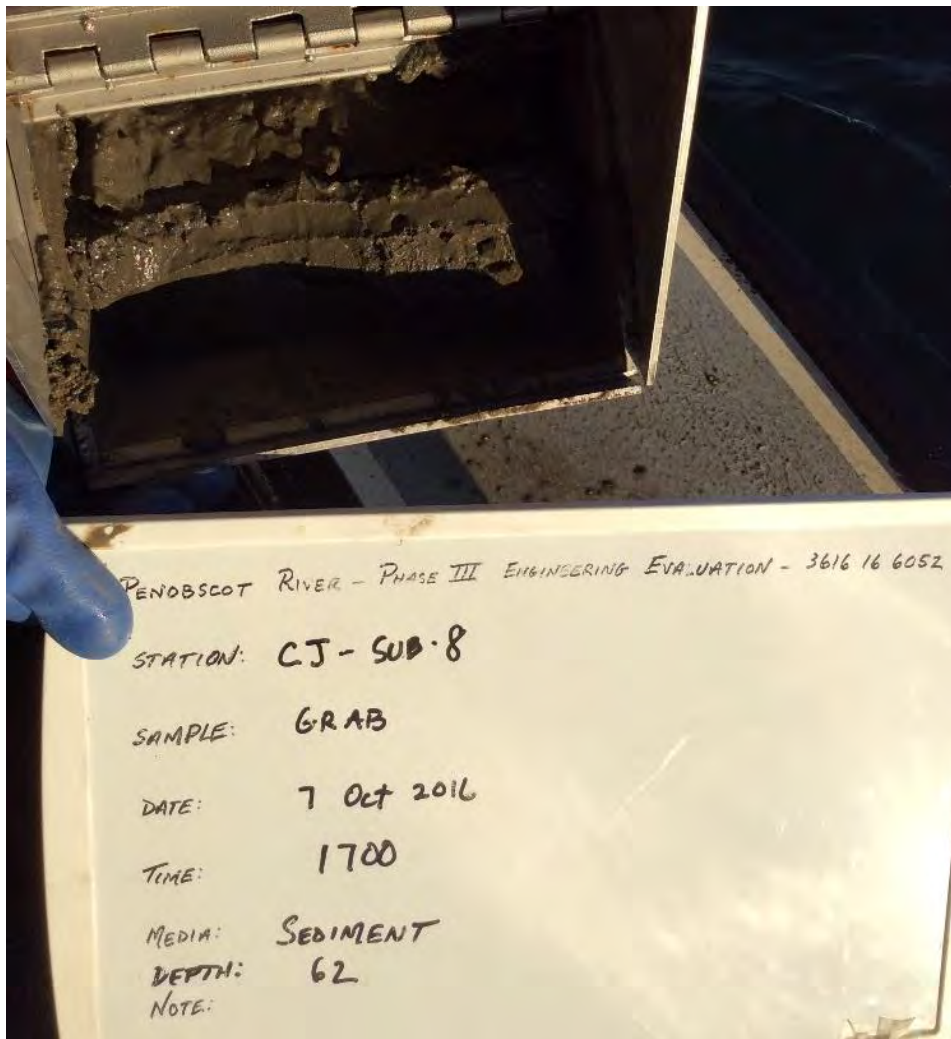
**PHOTO 45:**

Grab sample CJ-SSUB-3 / CJ06 collected on October 8, 2016 near Squaw Head (to the east) off of Cape Jellison in the Cape Jellison Reach



**PHOTO 46:**

Grab sample CJ-SUB-7 / CJ22 collected on October 7, 2016 near Wilson Point (to the east) in the Cape Jellison Reach



**PHOTO 47:**

Grab sample CJ-SUB-8 / CJ12 collected on October 7, 2016 in a subtidal area between Wilson Point and Turner Point on the left bank of the Cape Jellison Reach



**PHOTO 48:**

Grab sample CJ-SUB-2 / CJ05 collected on October 8, 2016 in the east branch of the shipping lane near Squaw Head in the Cape Jellison Reach





**PHOTO 49:**

Grab sample CJ-SUB-14 / CJ04 collected on October 8, 2016 in the east branch of the shipping lane near Squaw Point in the Cape Jellison Reach



**PHOTO 50:**

Grab sample CJ-SUB-3 / CJ03 collected on October 8, 2016 in the east branch of the shipping lane northeast of Squaw Head in the Cape Jellison Reach





**PHOTO 51:**

Grab sample CJ-SSUB-1 / CJ18 collected on October 8, 2016 west of Fort Point Ledge in Cape Jellison Reach near the edge of the thalweg



**PHOTO 52:**

Grab sample CJ-SUB-4 / CJ01 collected on October 8, 2016 west of Fort Point Ledge in Cape Jellison Reach in the thalweg



**PHOTO 53:**

Grab sample FPC-1 collected on October 8, 2016 northeast of Fort Point in the Upper Penobscot Bay Reach in the thalweg



**PHOTO 54:**

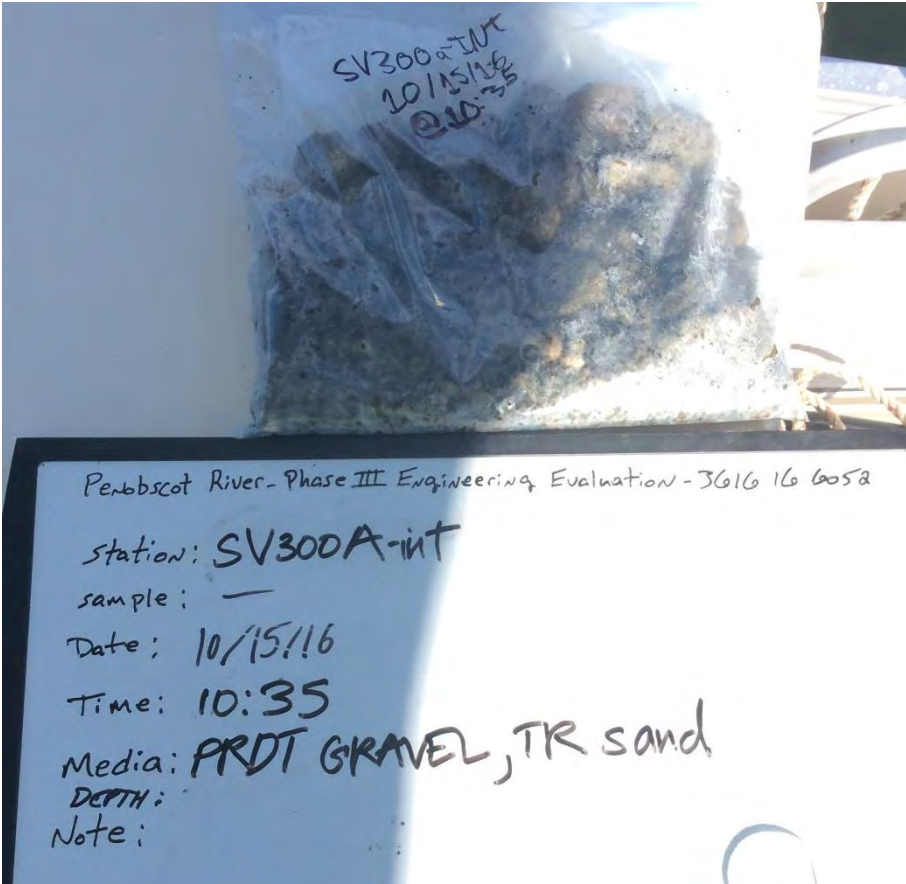
Grab sample FPC-2 collected on October 8, 2016 near the convergence of the thalwegs around Verona Island in the Upper Penobscot Bay Reach





**PHOTO 55:**

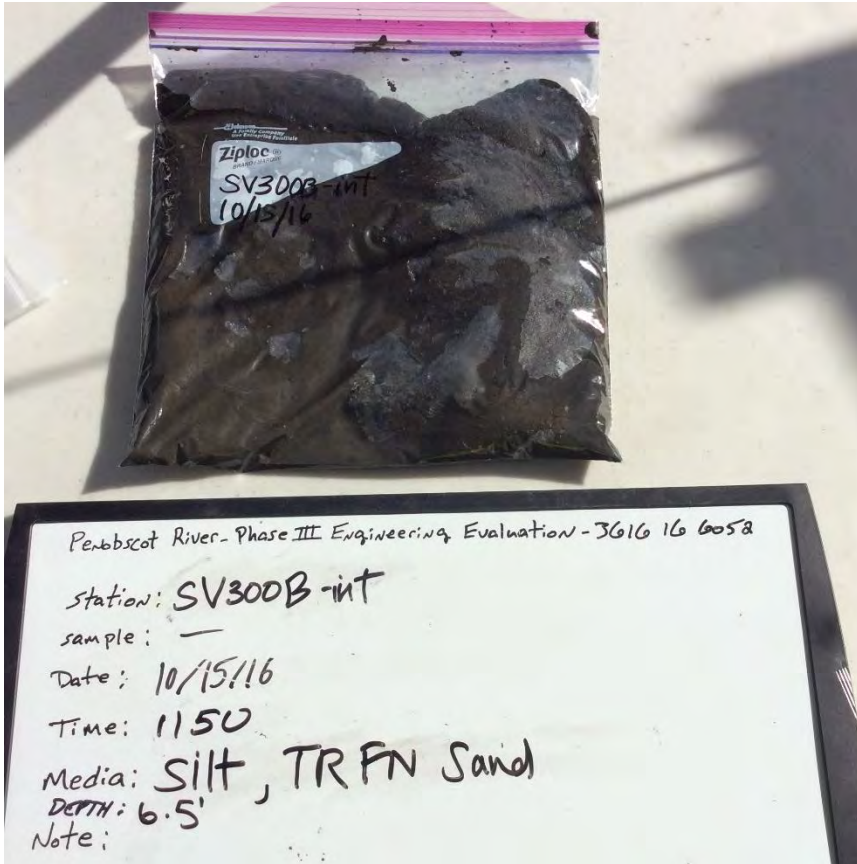
Grab sample FPC-3 collected on October 8, 2016 near the left bank in the Upper Penobscot Bay Reach



**PHOTO 56:**

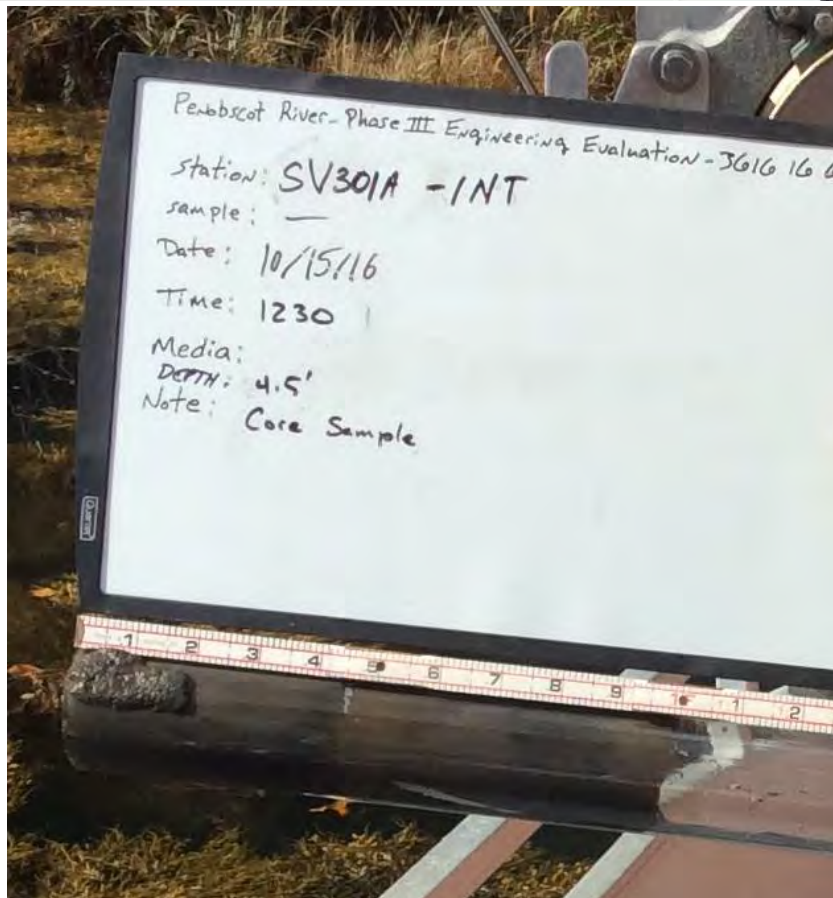
Bulk grab sample SV300A-INT / VE61 attained near the right bank of Verona Island in the Verona East Reach





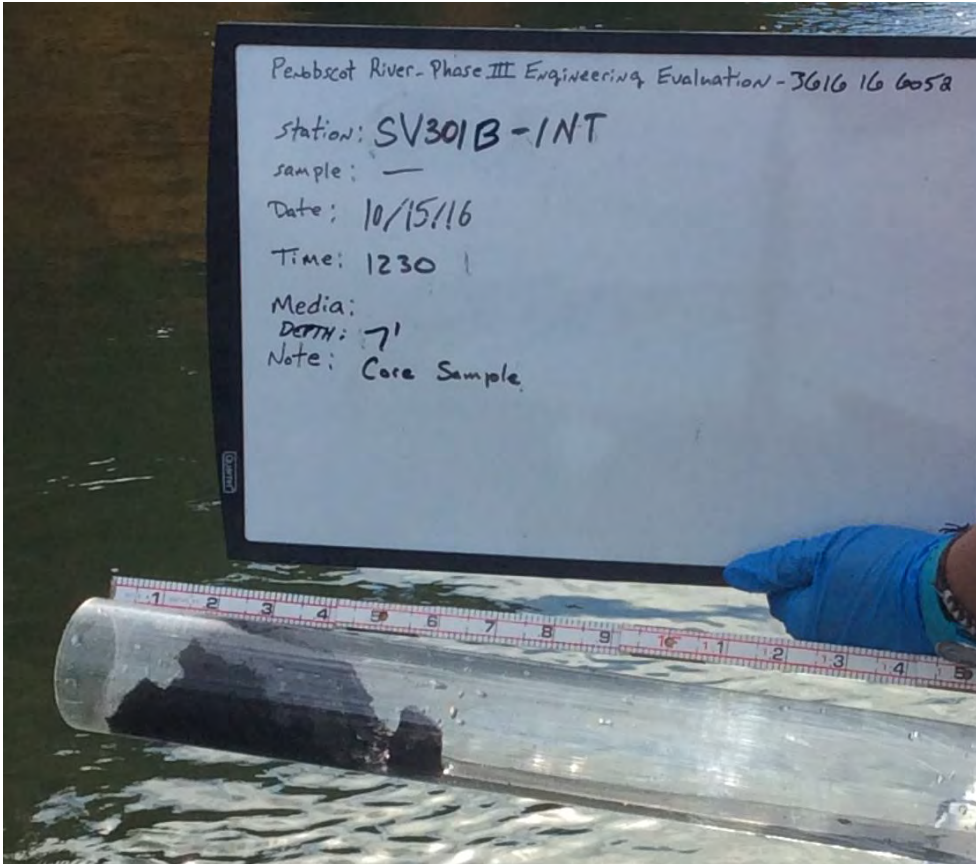
**PHOTO 57:**

Grab sample SV300B-INT / VE53 collected near the right bank across from Verona Island in the Verona East Reach



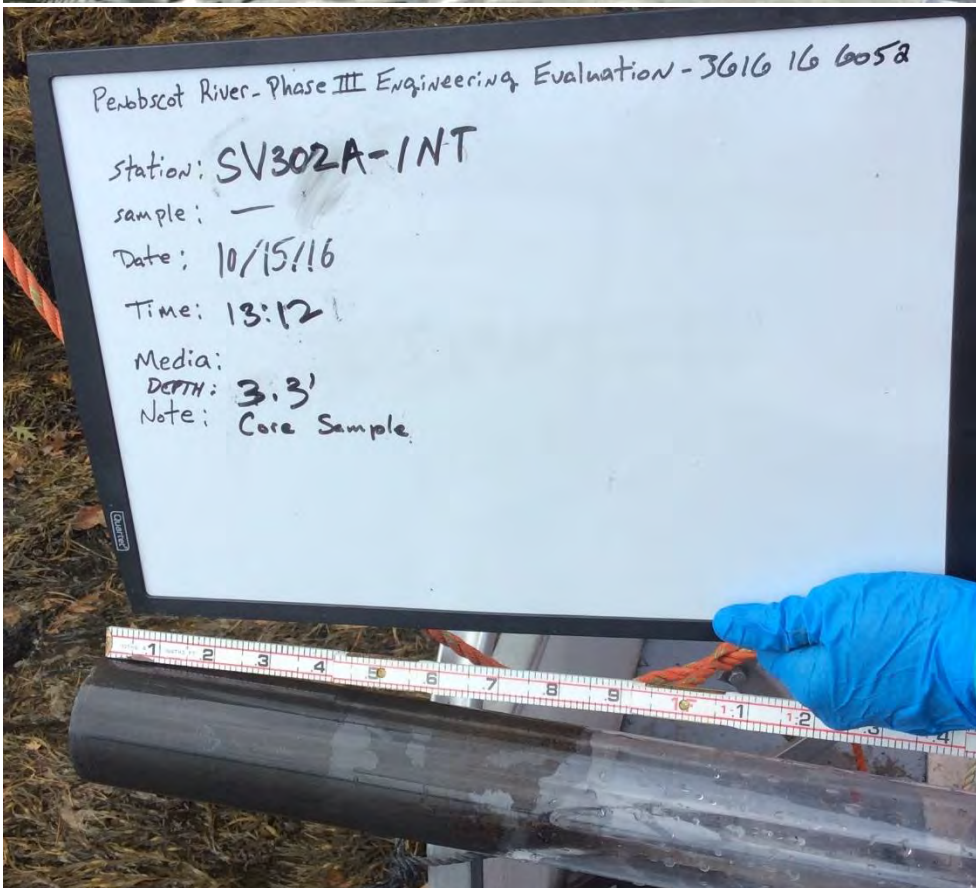
**PHOTO 58:**

Core sample SV301A-INT / VE59 collected left bank near Verona Island and the confluence of Orland River in the Verona East Reach



**PHOTO 59:**

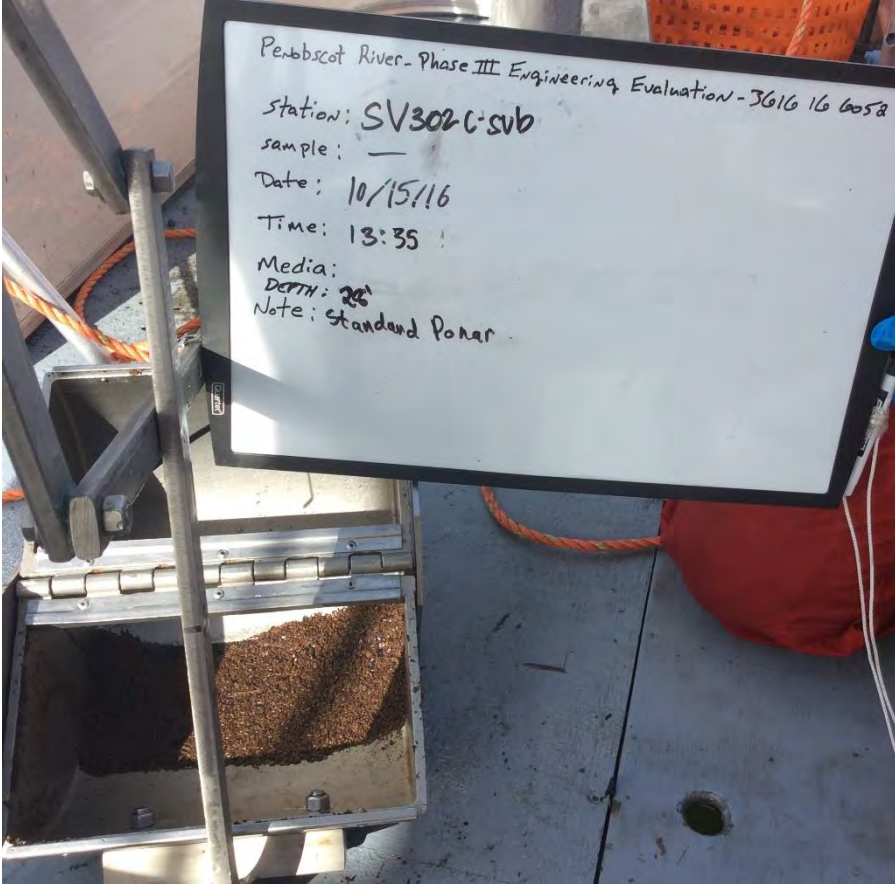
Bulk core sample SV301B-INT / VE52 attained near the right bank across from Verona Island in the Verona East Reach



**PHOTO 60:**

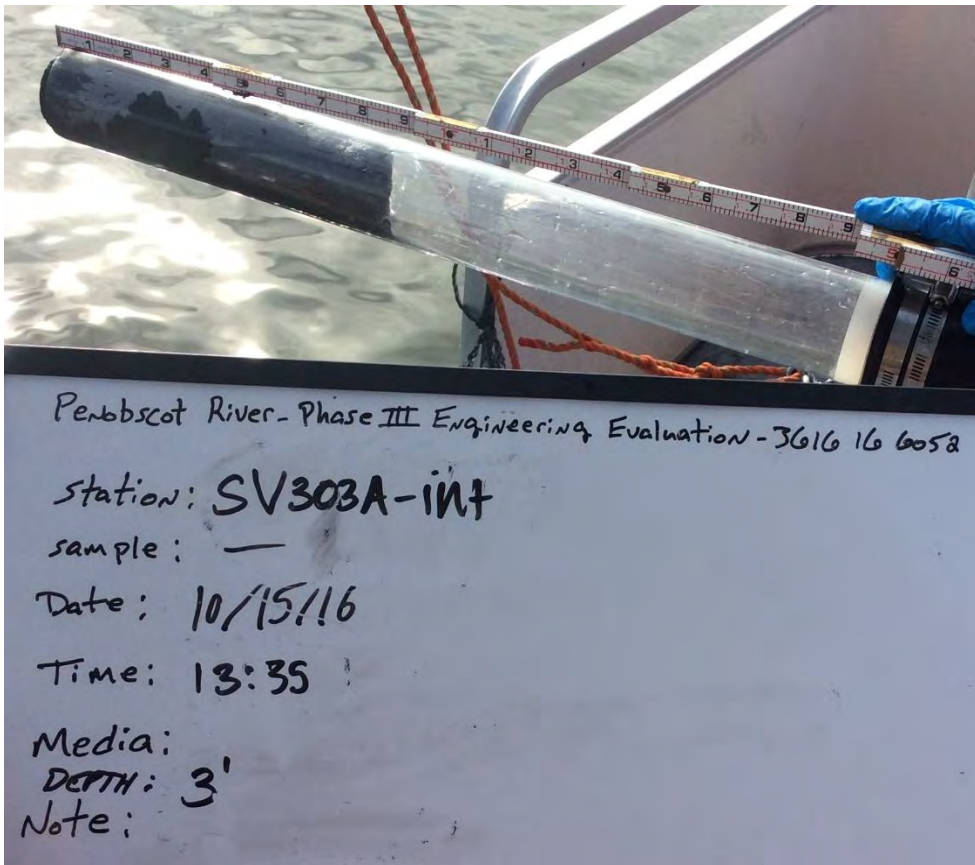
Core sample SV302A-INT / VE60 collected near the right bank of Verona Island in the Verona East Reach





**PHOTO 61:**

Bulk grab sample SV302C-SUB / VE55 attained in the thalweg near the confluence of the Orland River in the Verona East Reach



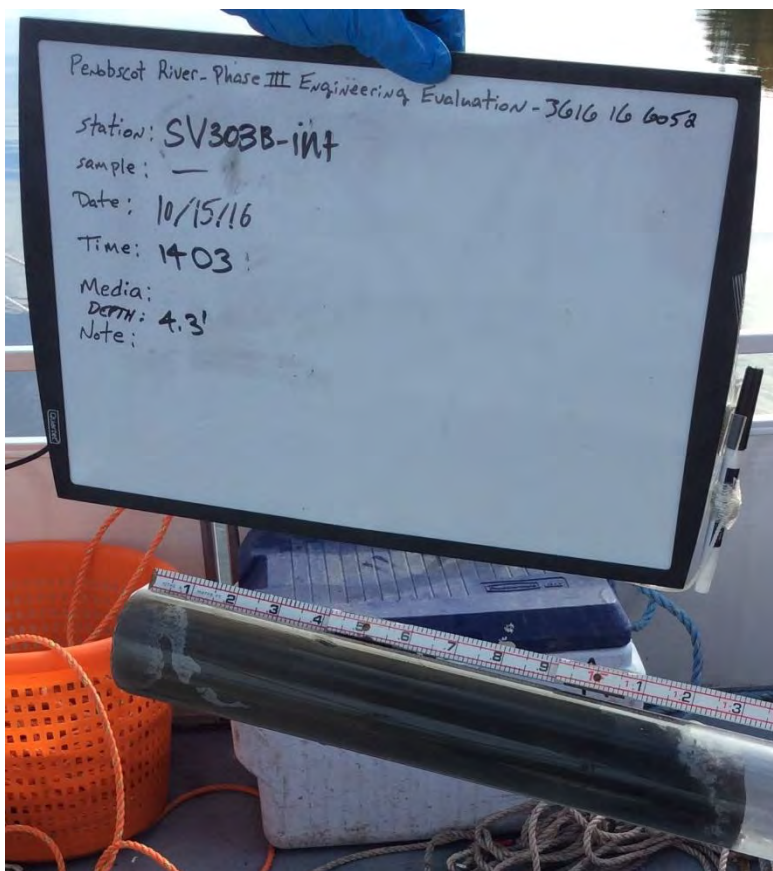
**PHOTO 62:**

Core sample SV303A-INT / VE50 collected in the mouth of the Orland River near the left bank in the Verona East Reach



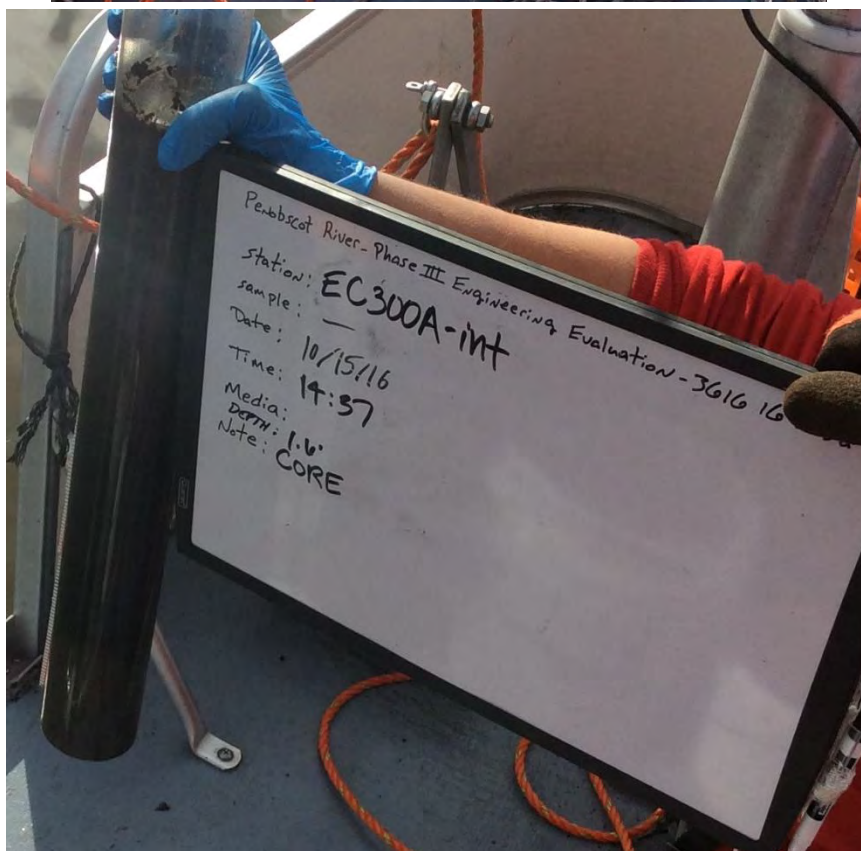
**PHOTO 63:**

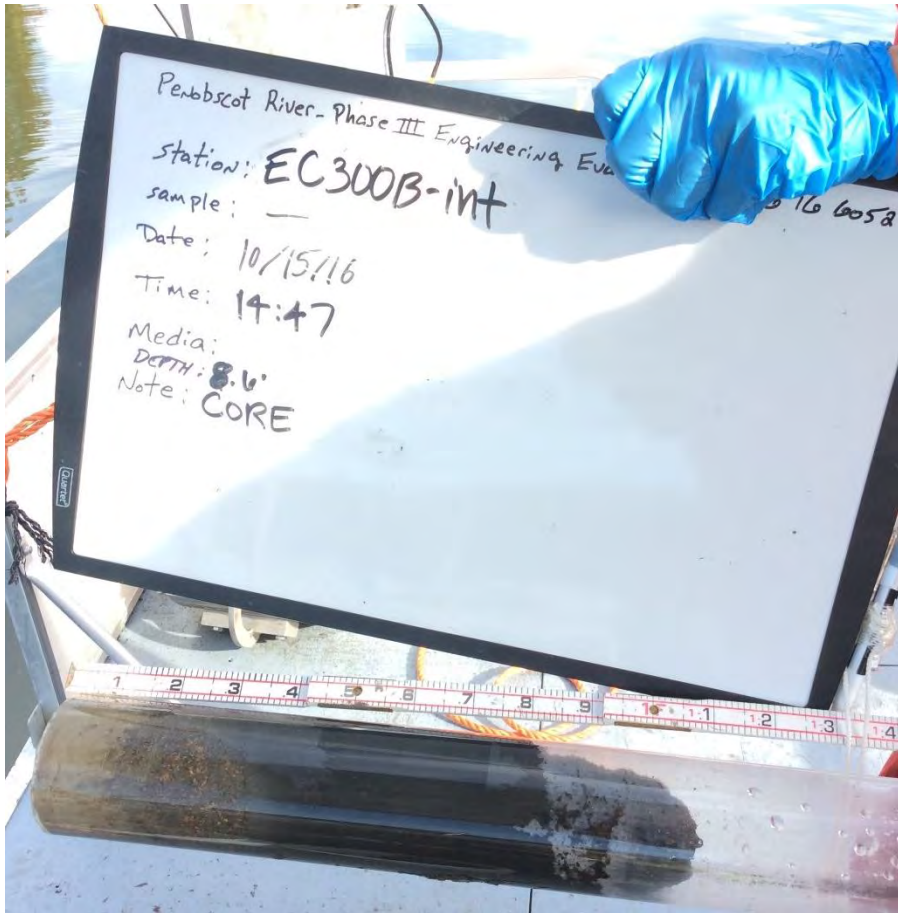
Cor sample SV303B-INT / VE58 collected across the thalweg to the mouth of the Orland River in the Verona East Reach



**PHOTO 64:**

Core sample EC300A-INT / VN73 collected on the right bank across the thalweg from Gross Point in the Verona Northeast Reach





**PHOTO 65:**

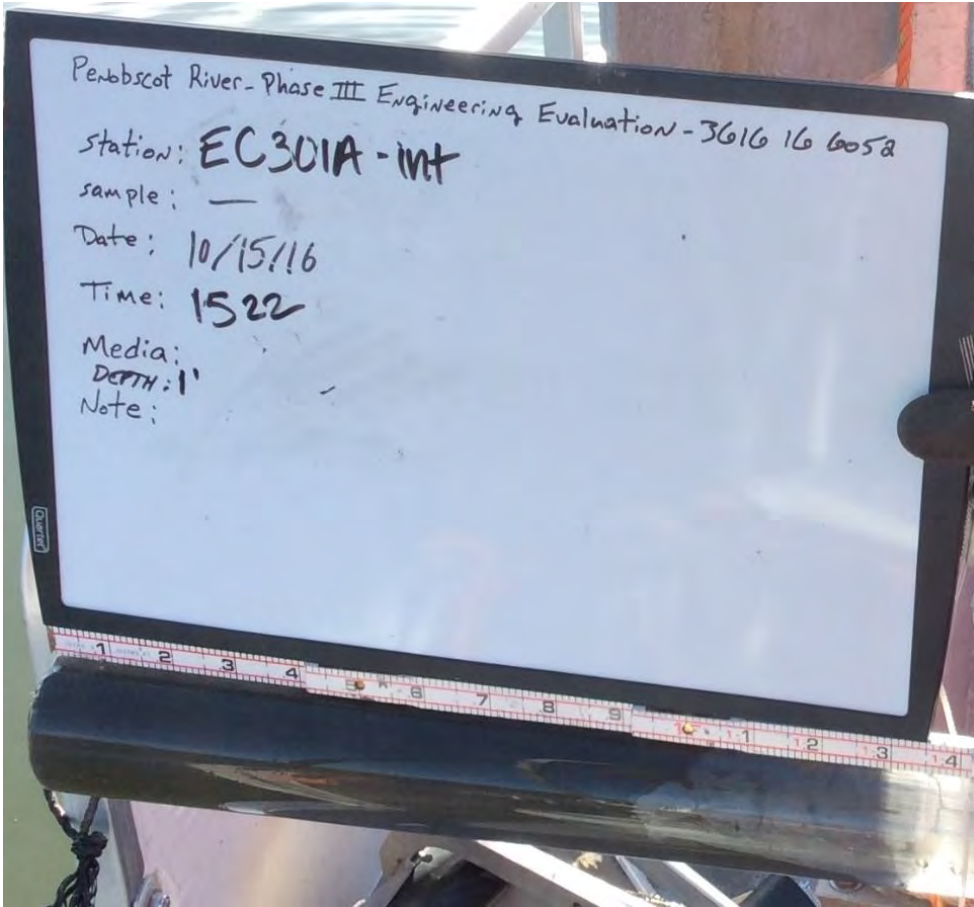
Core sample EC300B-INT / VN58 collected on the left bank of Gross Point (right before the mouth of the Orland River) in the Verona Northeast Reach



**PHOTO 66:**

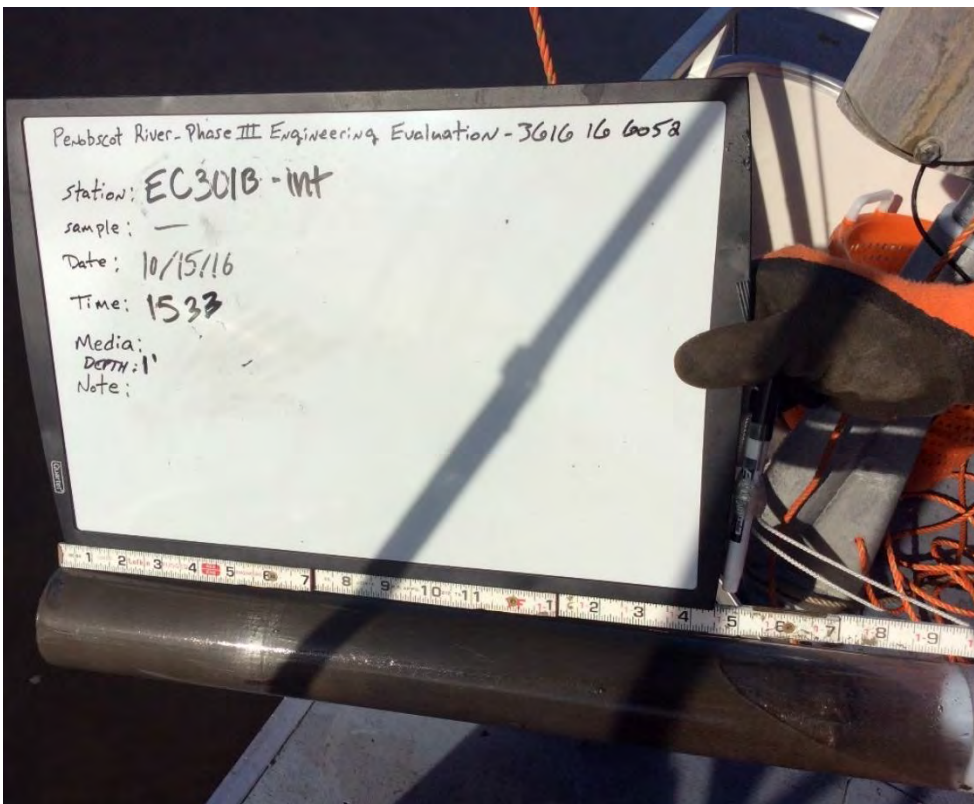
Bulk grab sample EC300C-SUB / VN66 attained in the thalweg near Gross Point and the confluence of the Orland River in the Verona Northeast Reach





**PHOTO 67:**

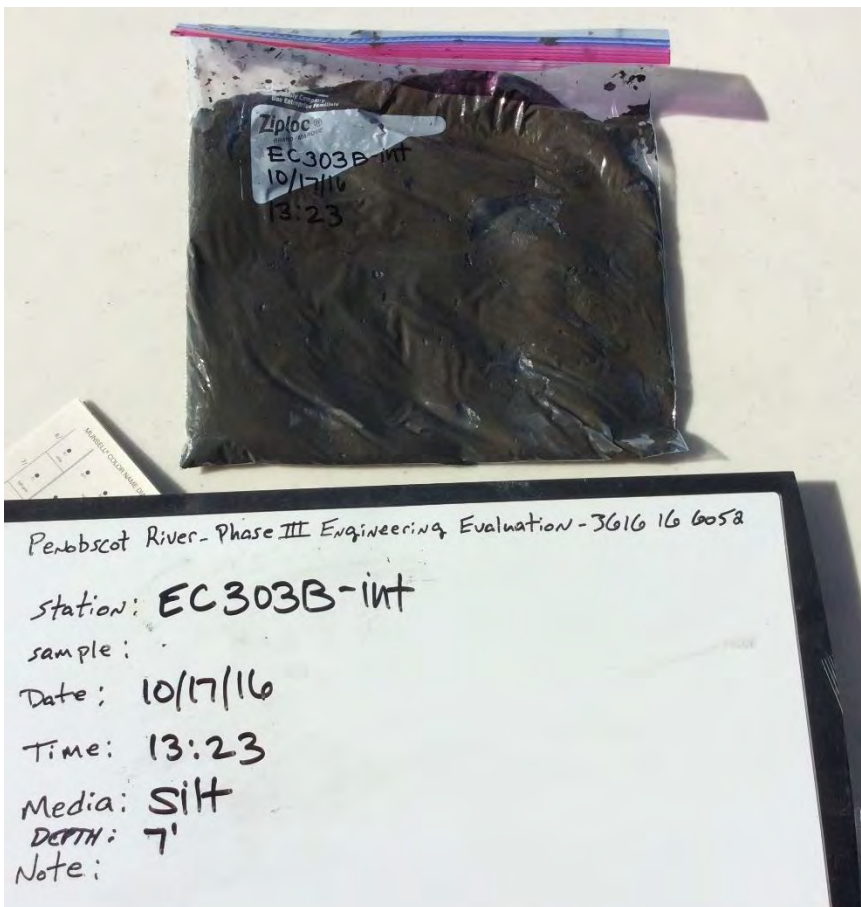
Core sample EC301A-INT / VN72 collected on the right bank northeast of Gross Point in the Verona Northeast Reach



**PHOTO 68:**

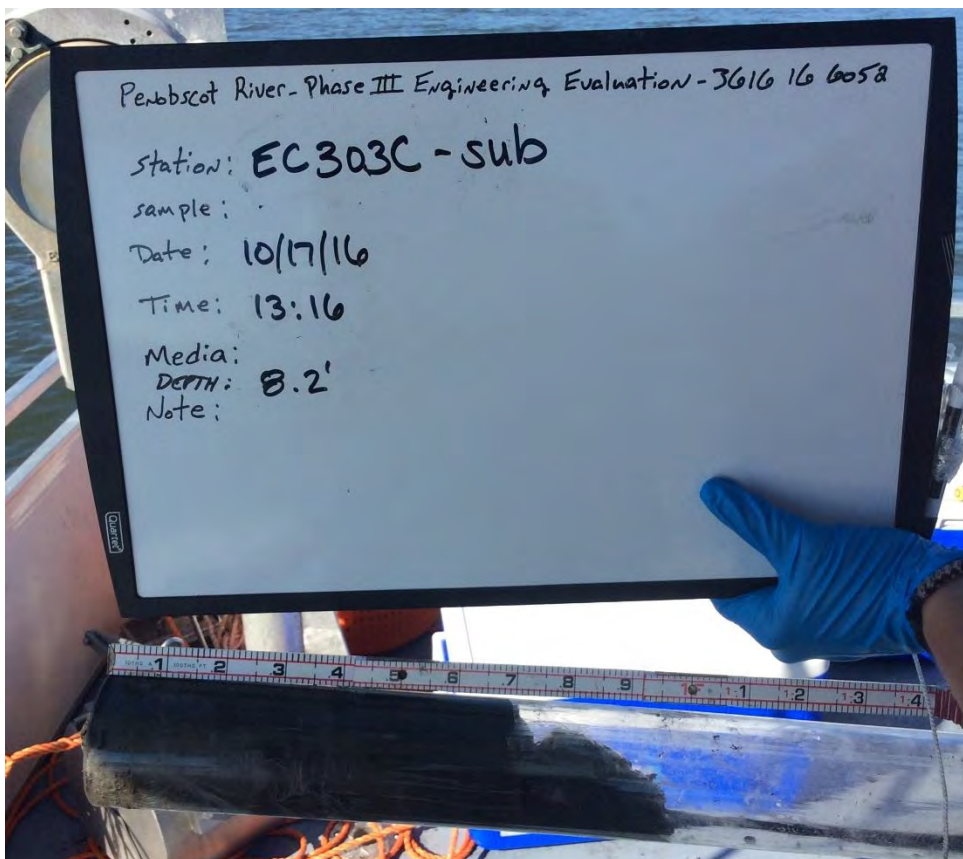
Core sample EC301B-INT / VN57 collected on the left bank northeast of Gross Point in the Verona Northeast Reach





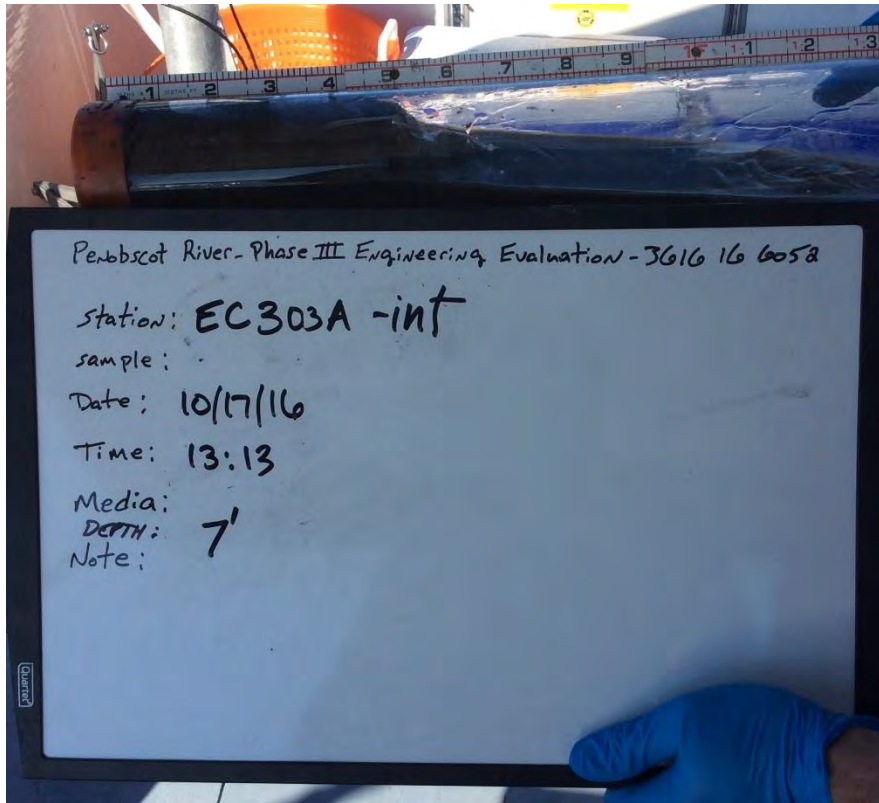
**PHOTO 69:**

Core sample EC303B-INT / VN74 collected on the northern point of Porcupine Island in the Verona Northeast Reach



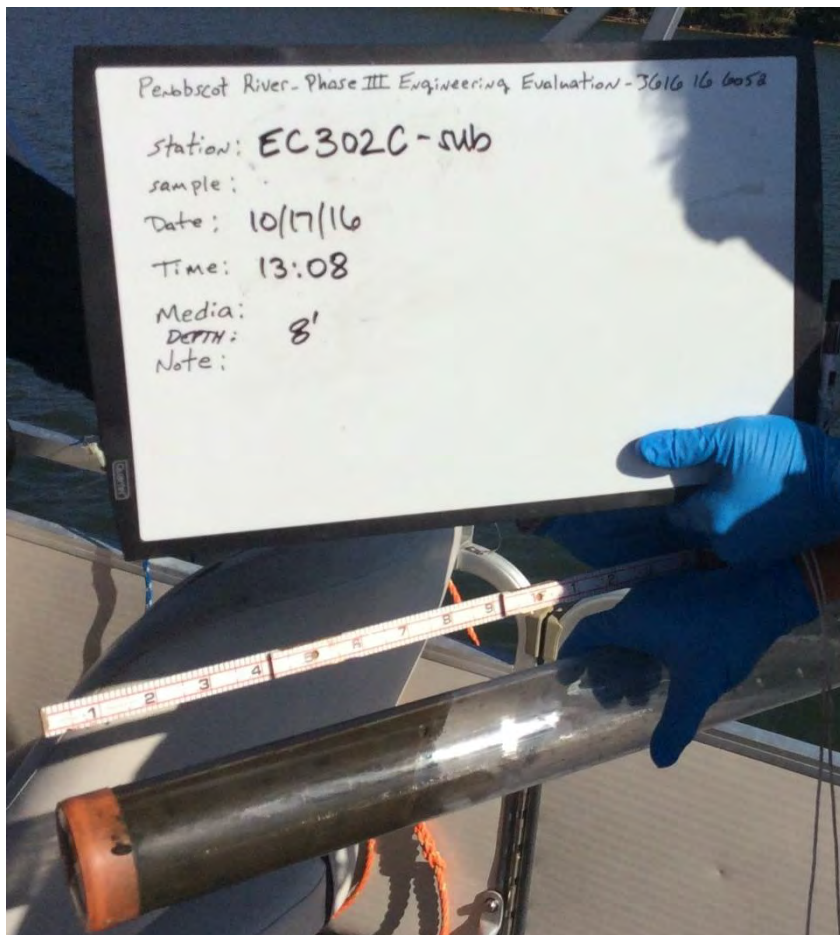
**PHOTO 70:**

Core sample EC303C-INT / VN75 collected in the center of the large intertidal sloping mudflat in between Verona Island (to the east) and the north end of Porcupine Island (to the west) in the Verona Northeast Reach



**PHOTO 71:**

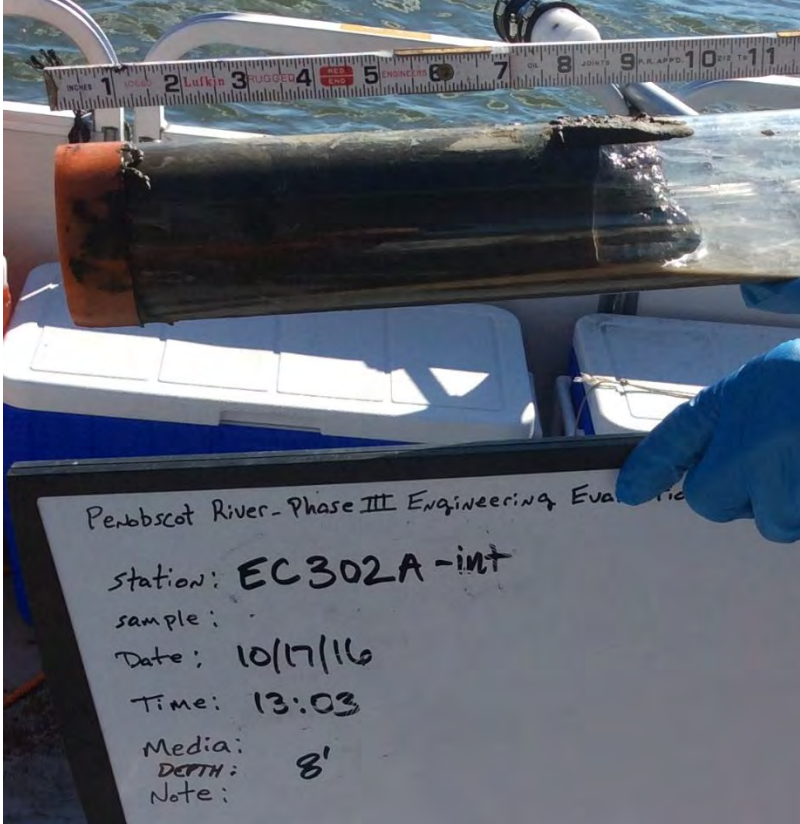
Core sample EC303A-INT / VN76 collected near the right bank of the large intertidal sloping mudflat in between Verona Island (to the east) and the north end of Porcupine Island (to the west) in the Verona Northeast Reach



**PHOTO 72:**

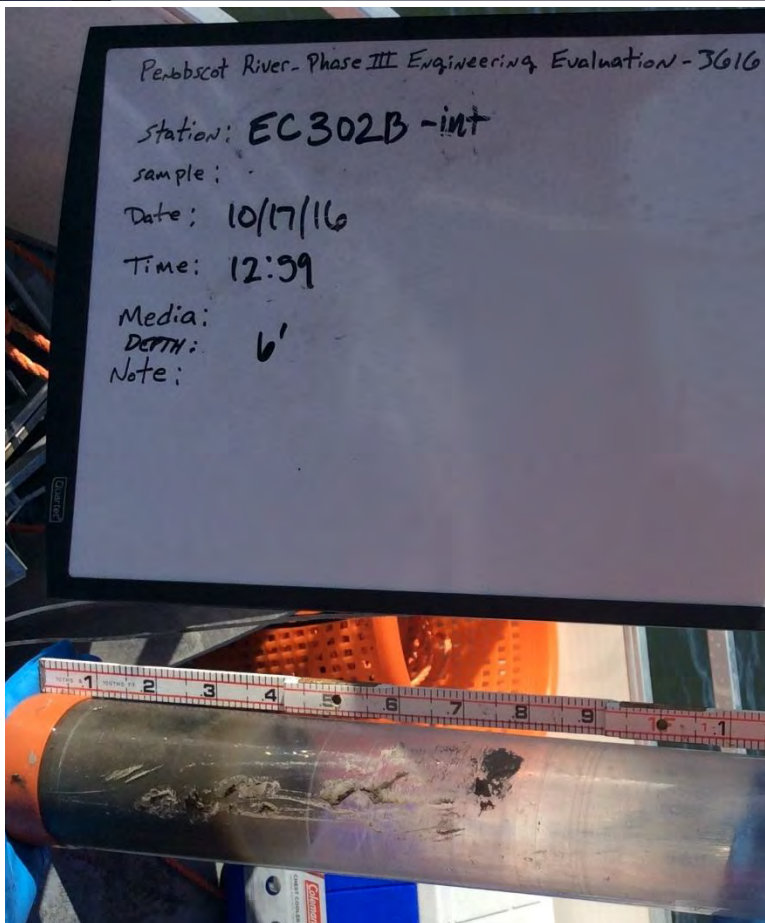
Core sample EC302C-SUB / VN78 collected in the center of the large intertidal sloping mudflat in between Verona Island (to the east) and the south end of Porcupine Island (to the west) in the Verona Northeast Reach





**PHOTO 73:**

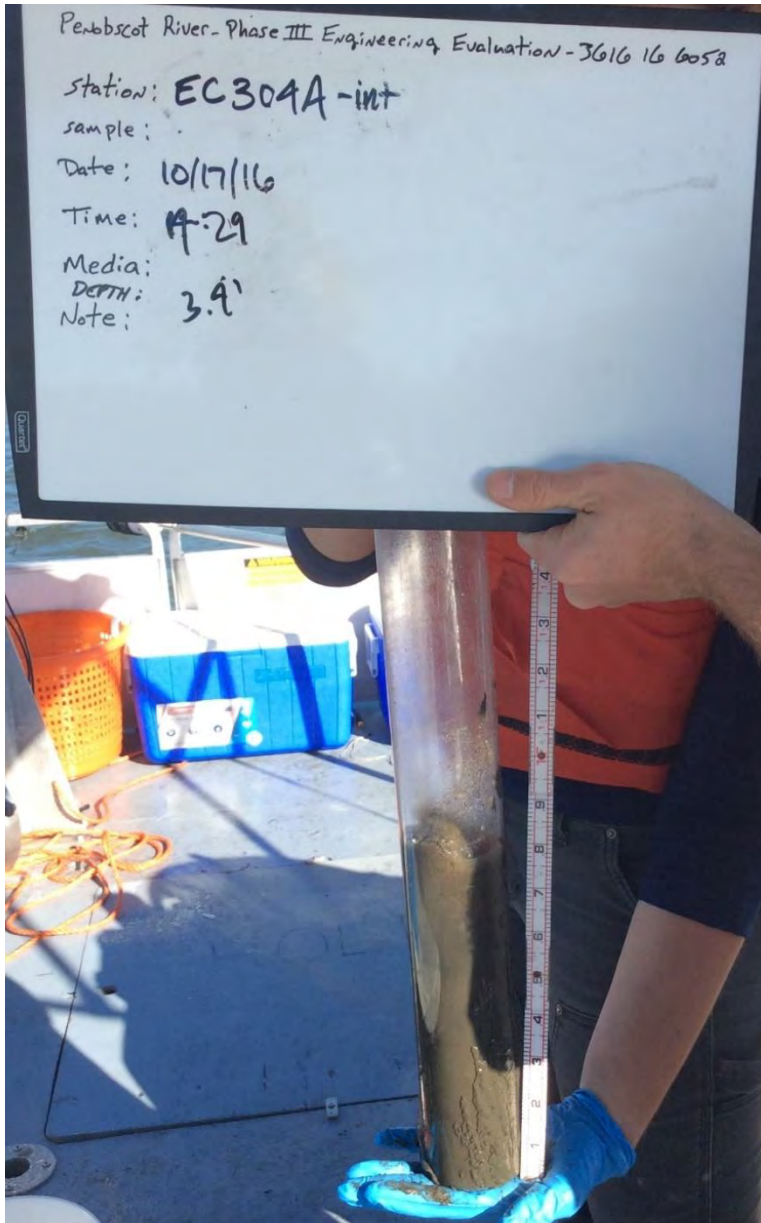
Core sample EC302A-INT / VN79 collected near the right bank of the large intertidal sloping mudflat in between Verona Island (to the east) and the south end of Porcupine Island (to the west) in the Verona Northeast Reach



**PHOTO 74:**

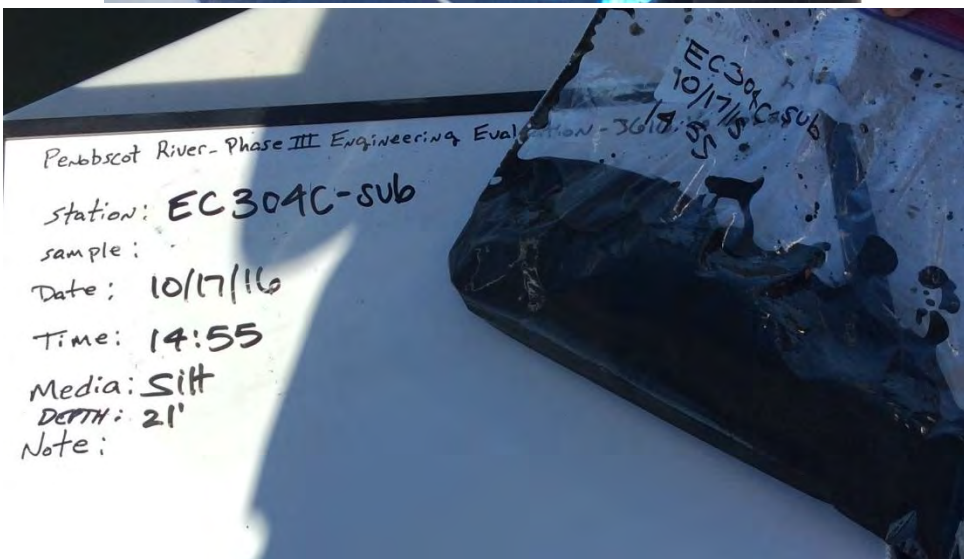
Core sample EC302B-INT / VN77 collected on the southern point of Porcupine Island in the Verona Northeast Reach





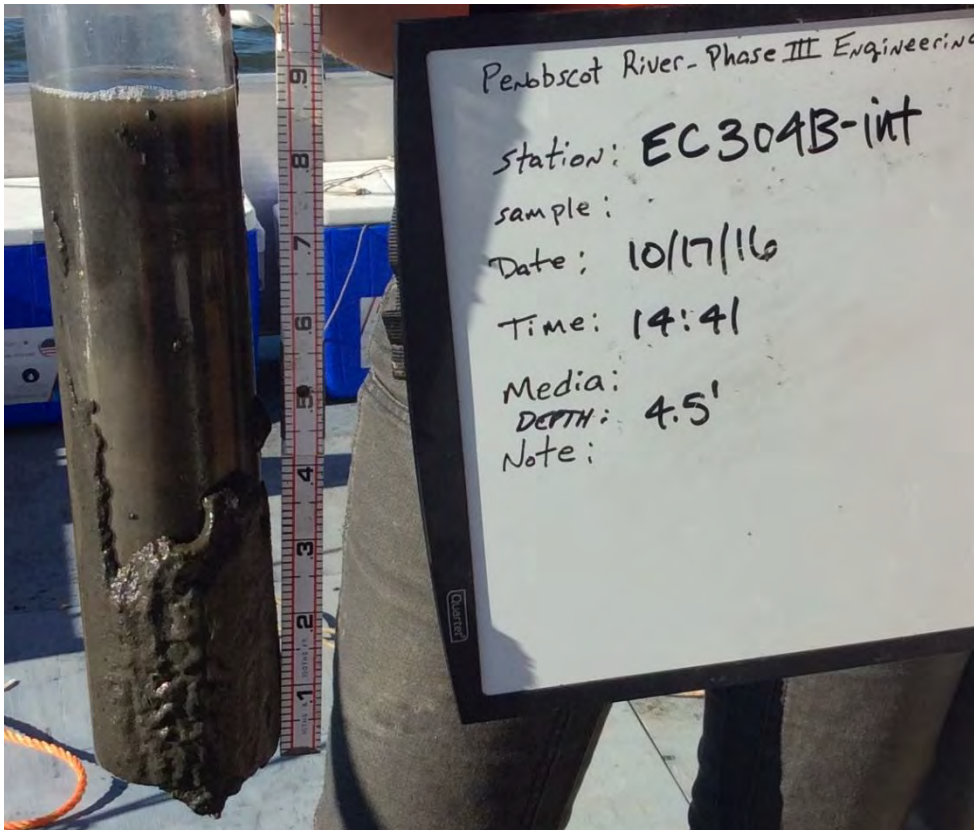
**PHOTO 75:**

Core sample EC304A-INT / VE80 collected near the right bank of the large intertidal sloping mudflat (on the southern end) in the Verona Northeast Reach



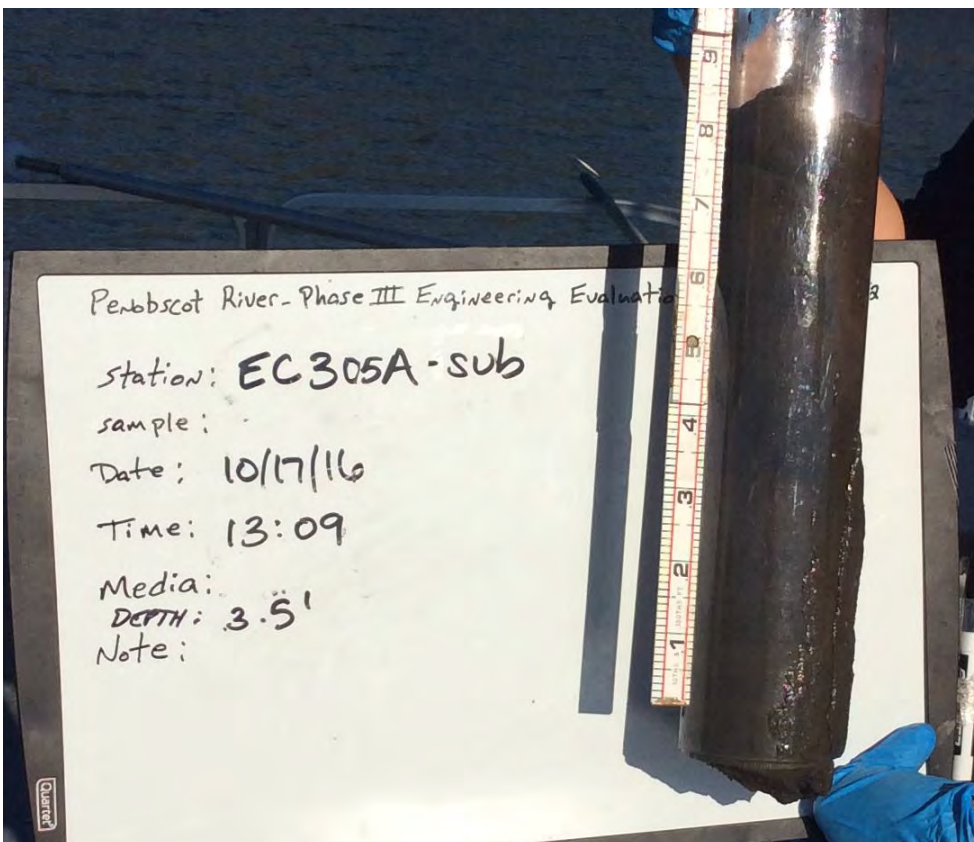
**PHOTO 76:**

Bulk core sample EC304C-SUB / VN64 attained in the thalweg near the southern extent of the large intertidal sloping mudflat in the Verona Northeast Reach



**PHOTO 77:**

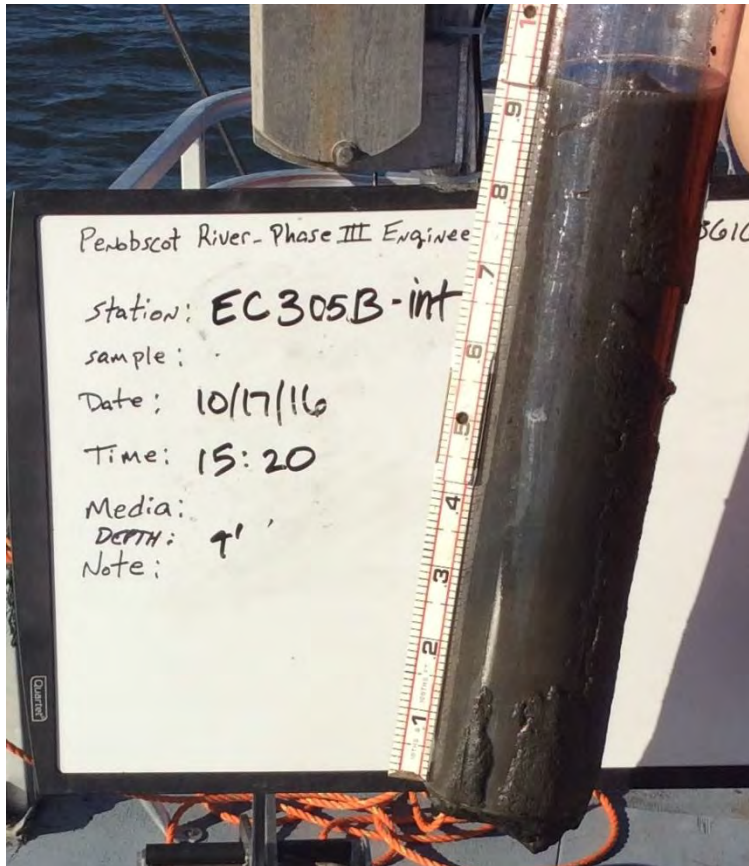
Core sample EC304B-INT / VN56 collected on the left bank near the southern extent of the large intertidal sloping mudflat in the Verona Northeast Reach



**PHOTO 78:**

Core sample EC305A-SUB / VN71 collected near the southern end of the Porcupine Island in the Verona Northeast Reach





**PHOTO 79:**

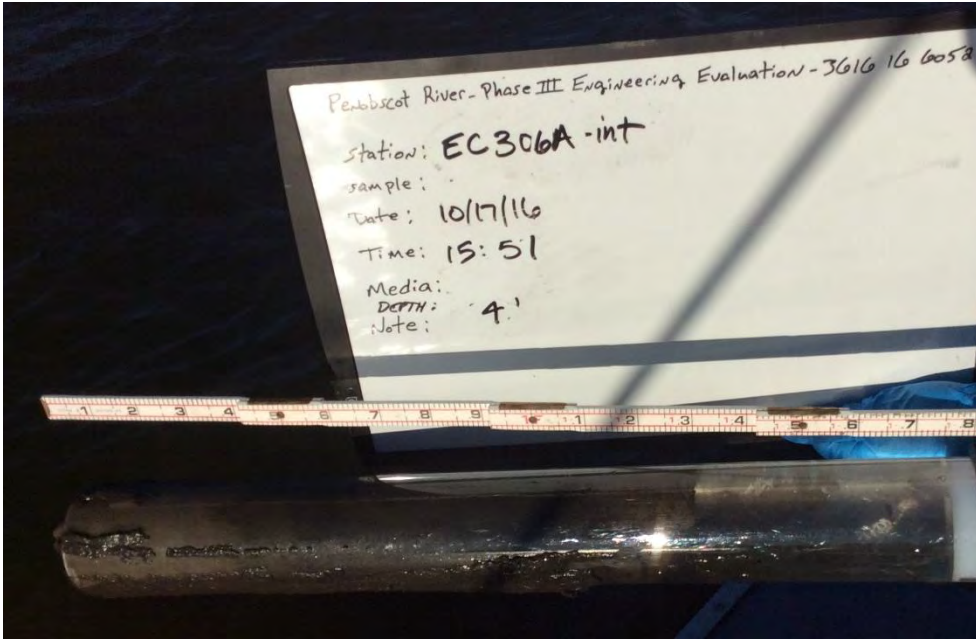
Core sample EC305B-INT / VN55 collected on the left bank of the main channel near the southern end of Porcupine Island in the Verona Northeast Reach



**PHOTO 80:**

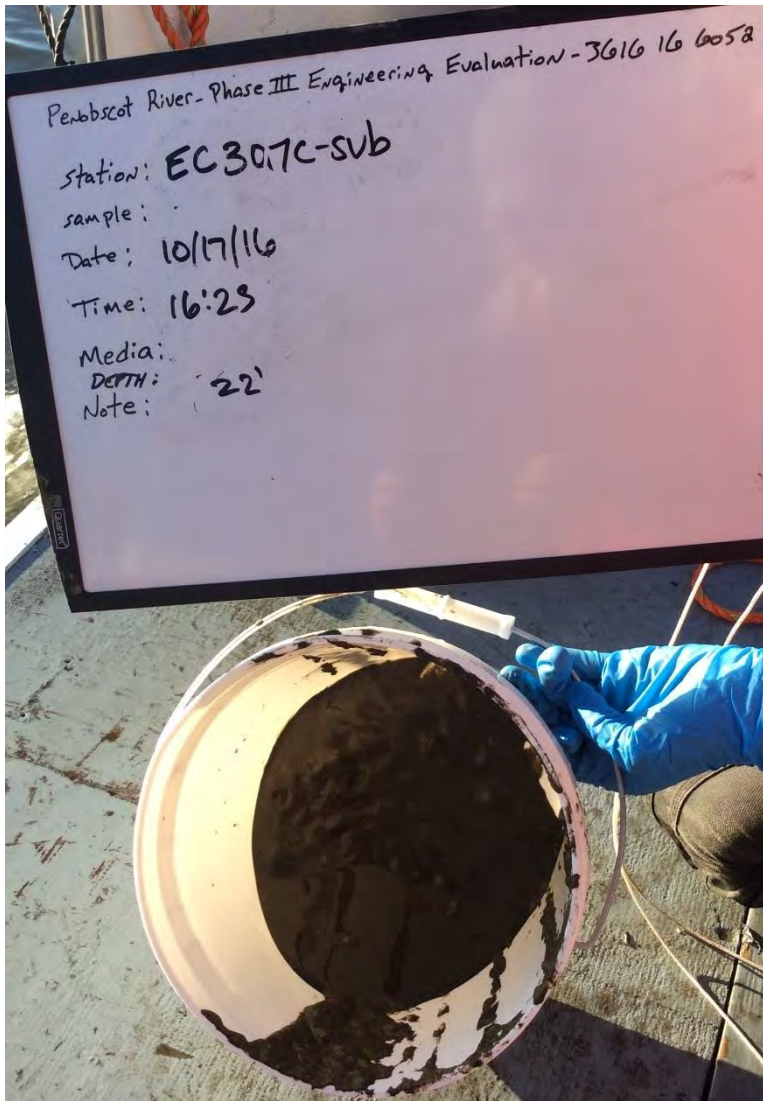
Core sample EC306B-INT / VN54 collected in a cove to the northwest of Porcupine Island in Verona Northeast Reach





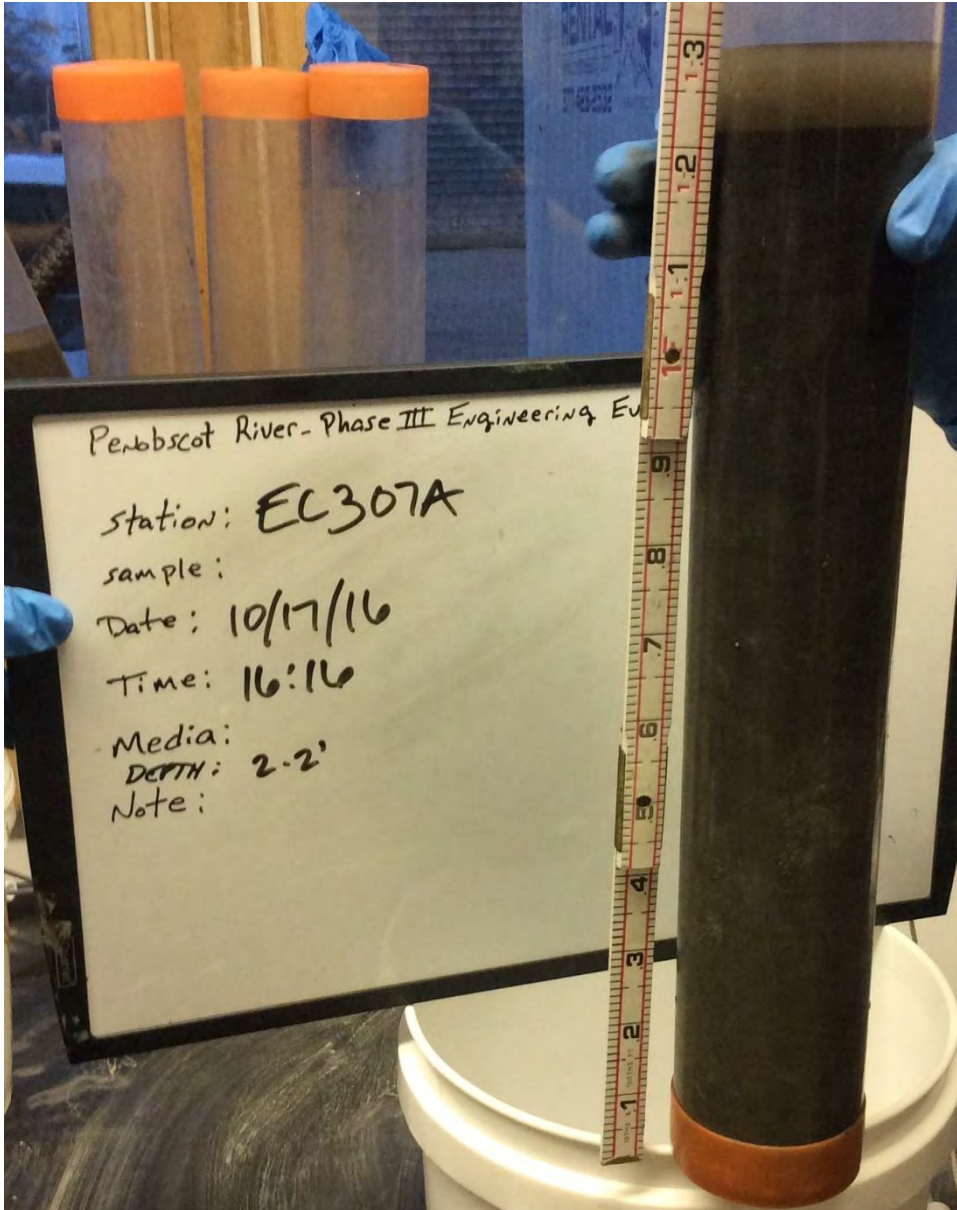
**PHOTO 81:**

Core sample EC306A-INT / VN70 collected on the left bank of the main channel near the northern end of Porcupine Island in the Verona Northeast Reach



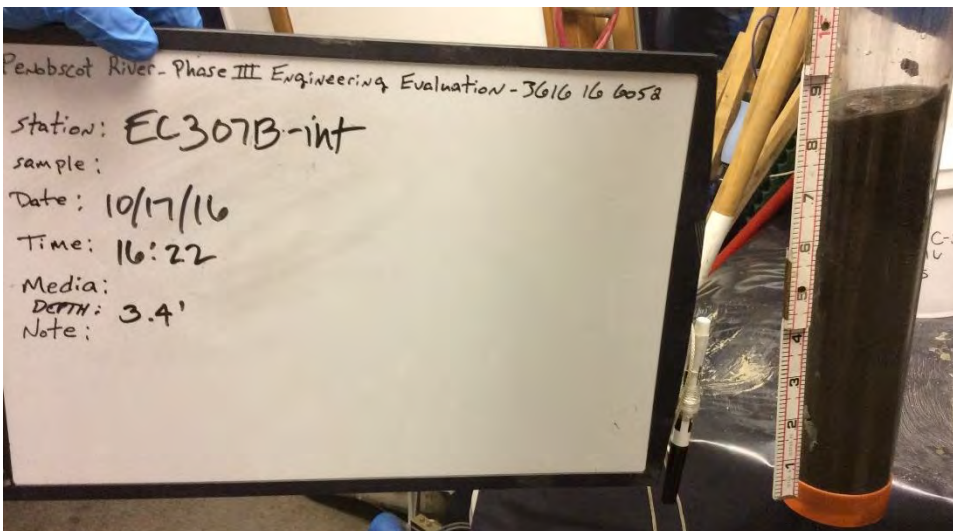
**PHOTO 82:**

Bulk grab sample EC307C-SUB / VN61 attained in the thalweg near the northern extent of the large intertidal sloping mudflat in the Verona Northeast Reach



**PHOTO 83:**

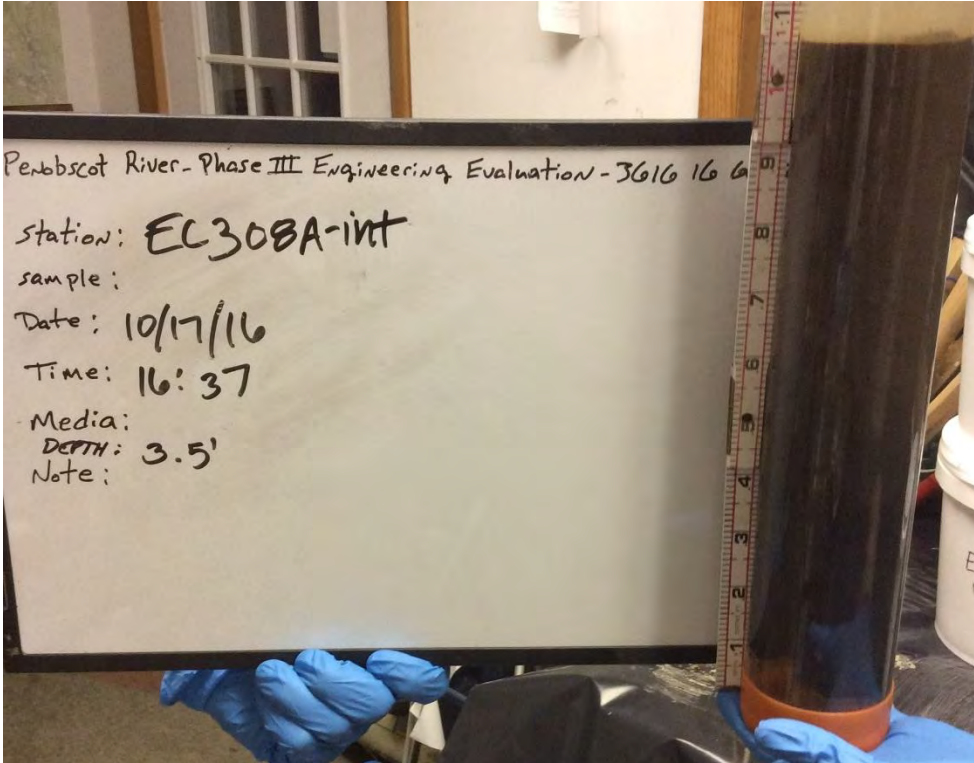
Core sample EC307A-INT / VN69 collected on the left bank near the northern extent of the large intertidal sloping mudflat in the Verona Northeast Reach



**PHOTO 84:**

Core sample EC307B-INT / VN53 collected on the right bank near the northern extent of the large intertidal sloping mudflat in the Verona Northeast Reach





**PHOTO 85:**

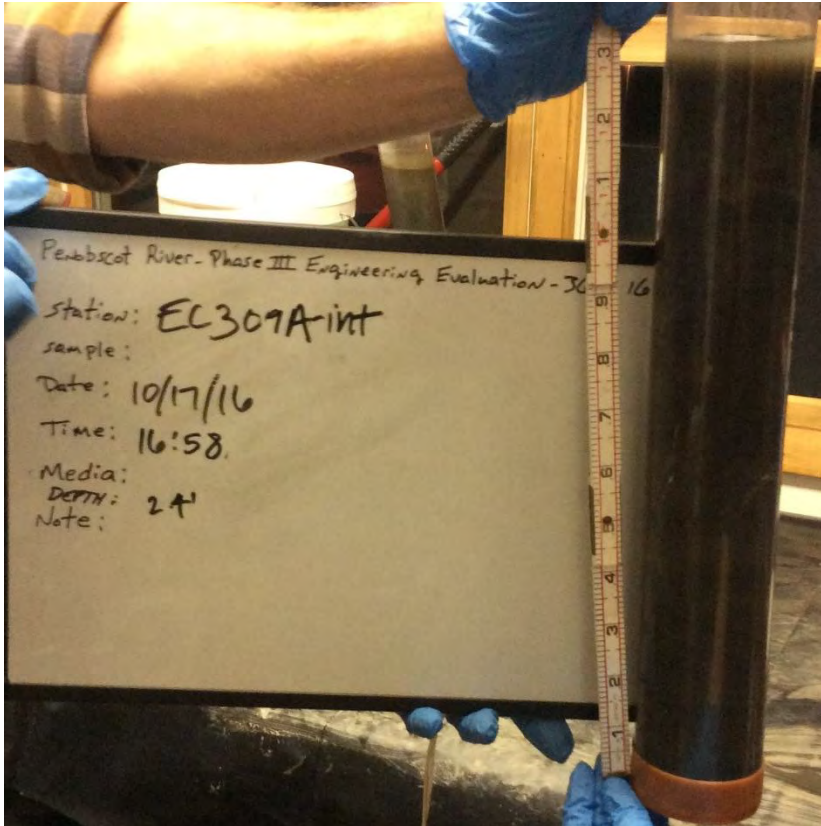
Core sample EC308A-INT / VN68 collected on the left bank near the northern extent of the large intertidal sloping mudflat in the Verona Northeast Reach



**PHOTO 86:**

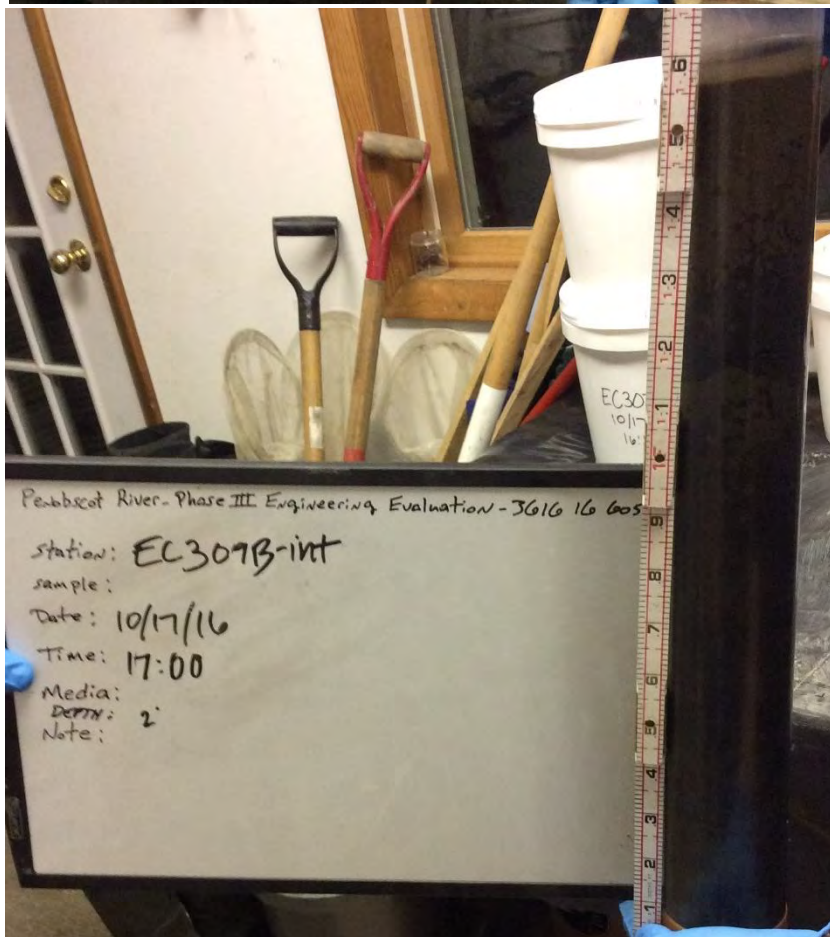
Core sample EC308B-INT / VN52 on 10/17/2016 at 16:41 in 2.1' water was collected on the right bank near the northern extent of the large intertidal sloping mudflat in the Verona Northeast Reach





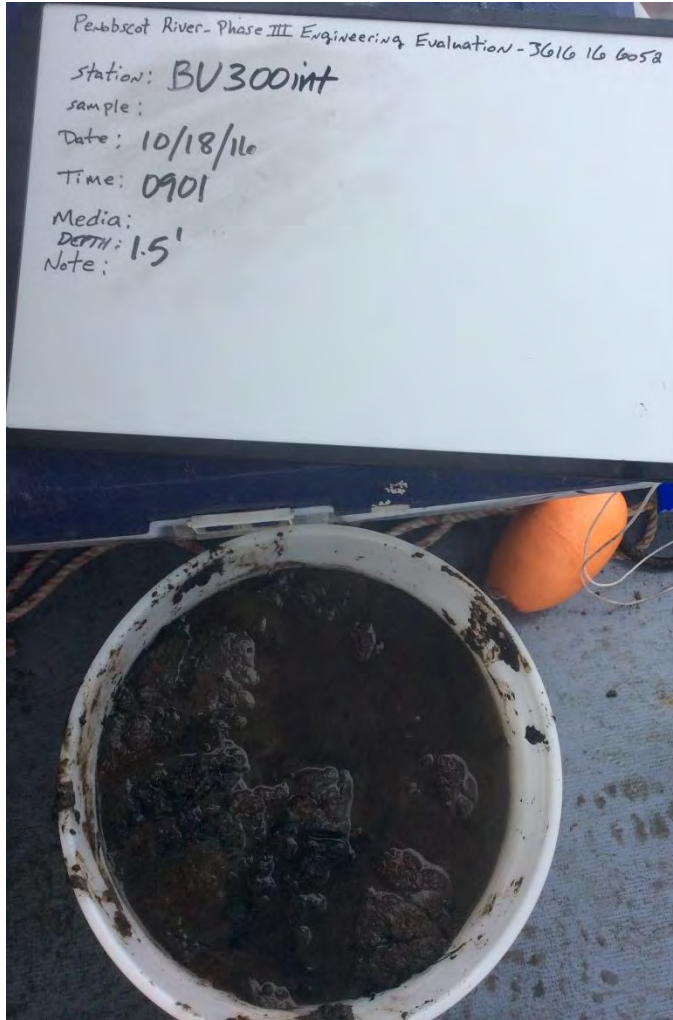
**PHOTO 87:**

Core sample EC309A-INT / VN67 collected in the northern extent of the Verona Northeast Reach near the right bank of the Bucksport Highway 1 Bridge



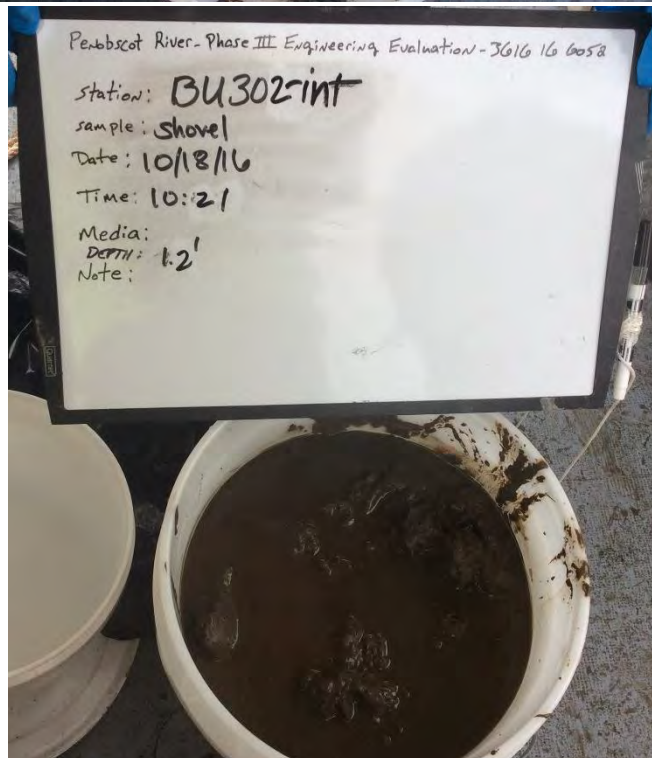
**PHOTO 88:**

Core sample EC309A-INT / VN67 collected in the northern extent of the Verona Northeast Reach near the left bank of the Bucksport Highway 1 Bridge



**PHOTO 89:**

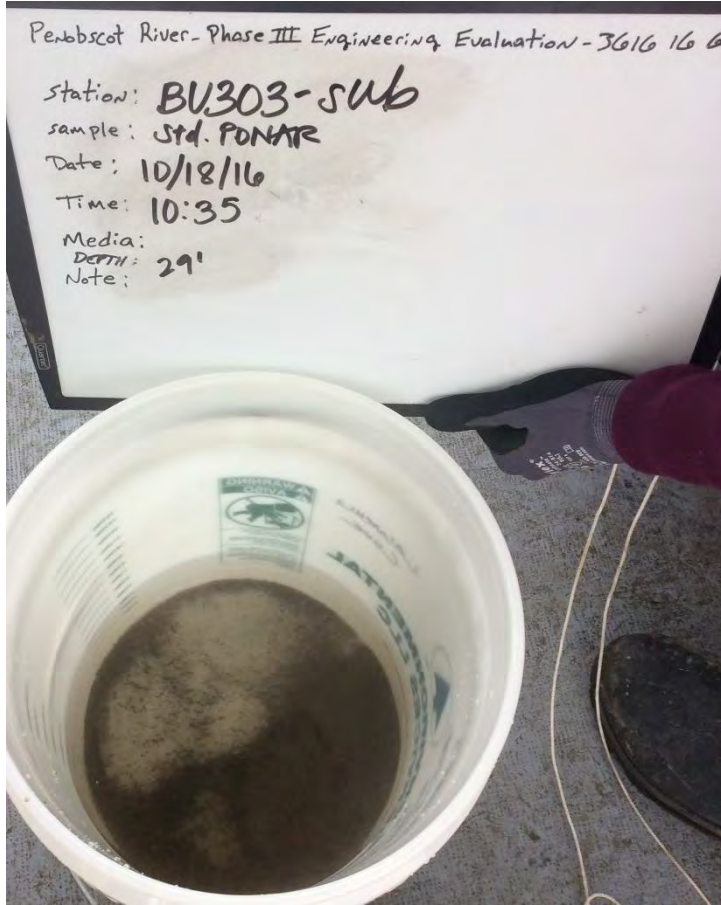
Bulk grab sample  
BU300-INT / BU50  
attained on the right  
bank in the Bucksport  
Reach north of a groin  
across from Luce Cove



**PHOTO 90:**

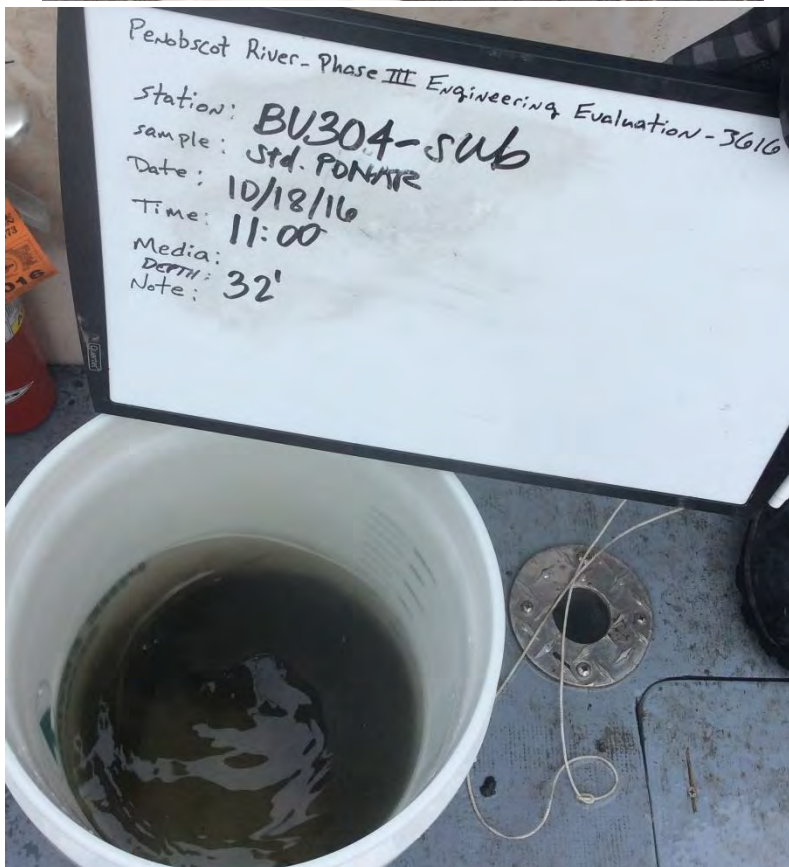
Bulk grab sample  
BU302-INT / BU52  
attained on the right  
bank in the Bucksport  
Reach north of a groin  
across from Indian  
Point





**PHOTO 91:**

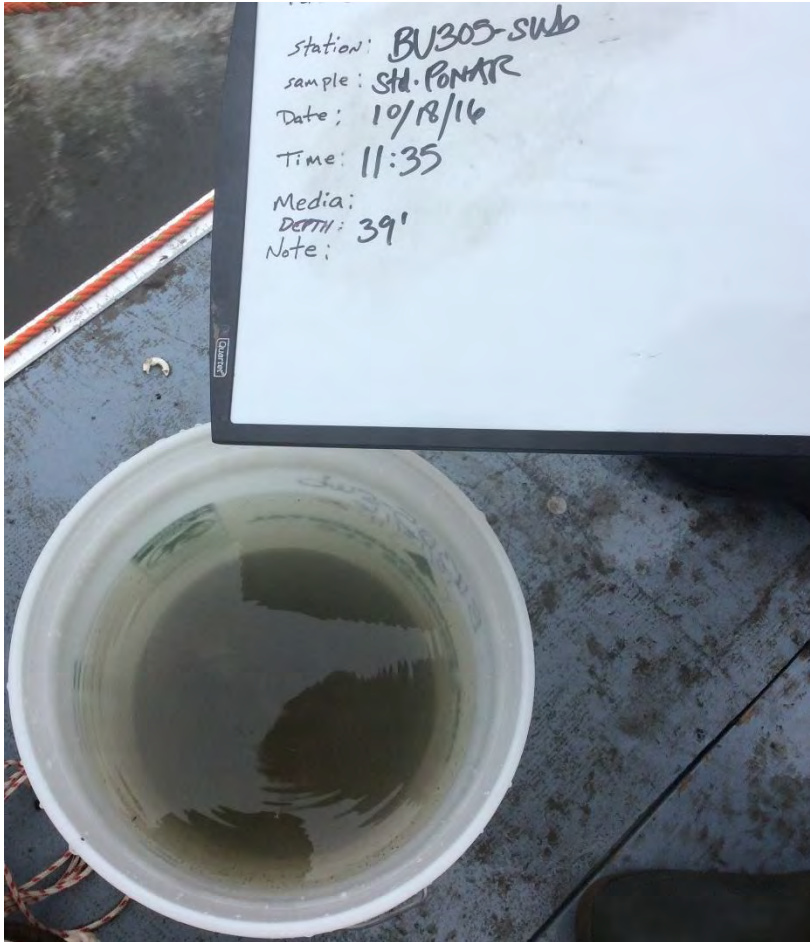
Bulk core sample BU303-SUB / BU54 attained west of the thalweg across from Lawrence Cove in the Bucksport Reach



**PHOTO 92:**

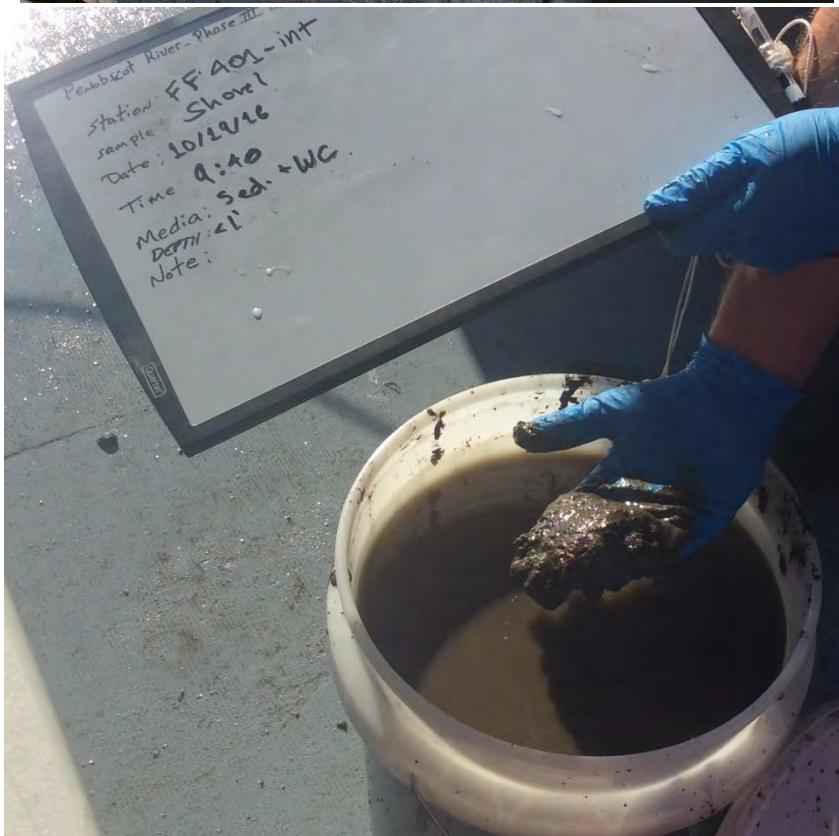
Bulk core sample BU304-SUB / BU55 attained on the western edge of the thalweg across from Luce Cove in the Bucksport Reach





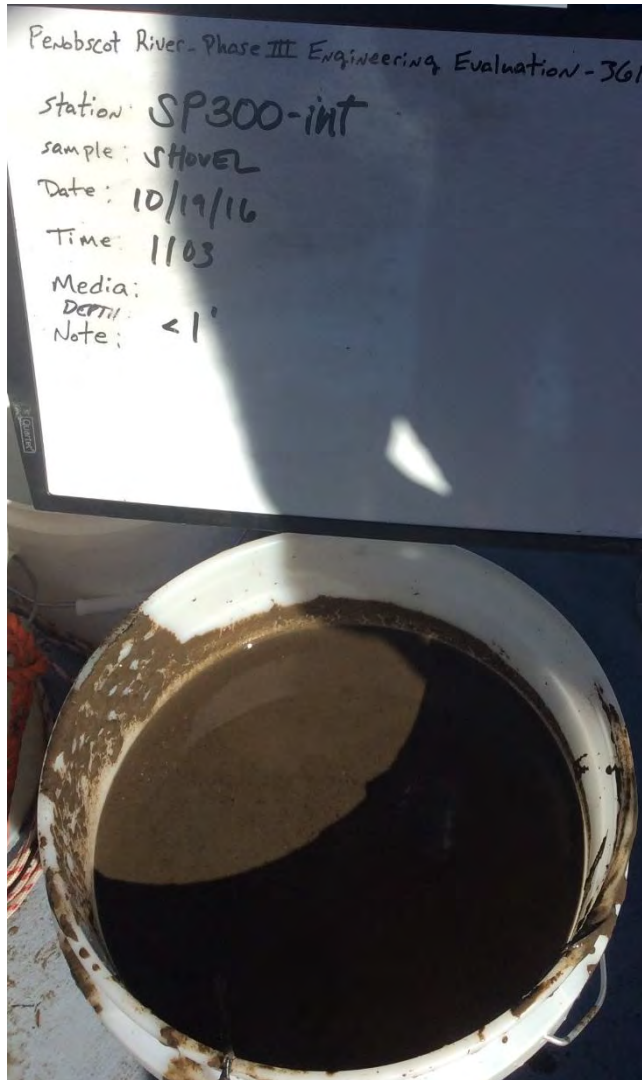
**PHOTO 93:**

Bulk grab sample  
BU305-SUB / BU56  
attained near the right  
bank in the 22' hole in  
the Bucksport Reach



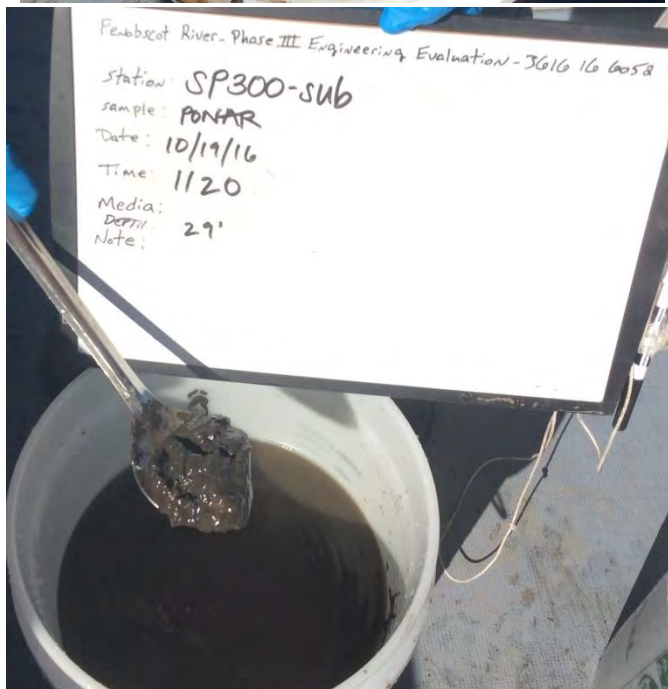
**PHOTO 94:**

Bulk grab sample  
FF401-INT / FF52  
attained on the left  
bank large Intertidal  
mudflat south of  
Drachm Point in the  
Frankfort Flats Reach



**PHOTO 95:**

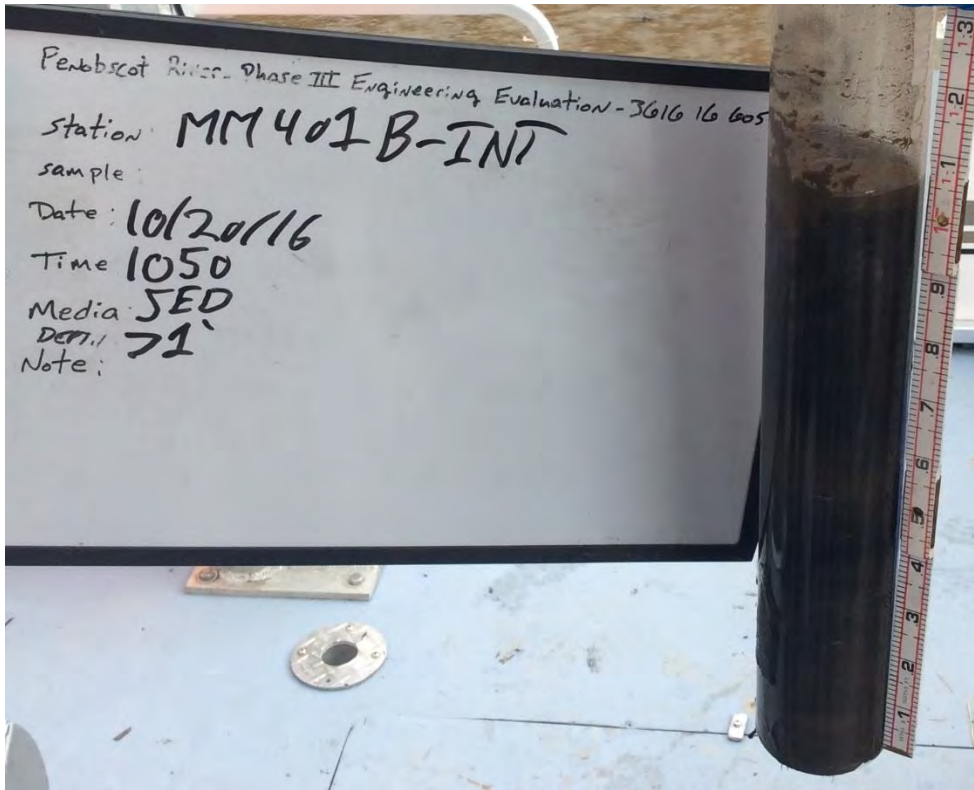
Grab sample SP300-INT / ON1 collected near the edge of an intertidal mudflat and subtidal interface on the left bank north of Snub Point in the Orrington Reach



**PHOTO 96:**

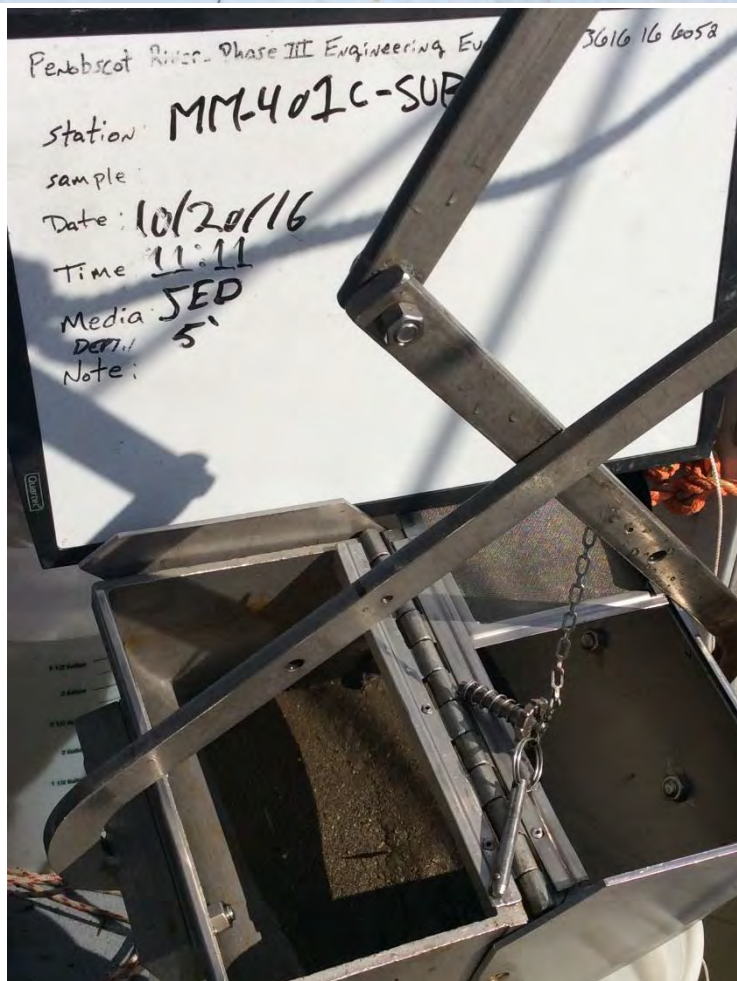
Bulk grab sample SP300-SUB / ON2 attained in the thalweg near the edge of an intertidal mudflat and subtidal interface north of Snub Point in the Orrington Reach





**PHOTO 97:**

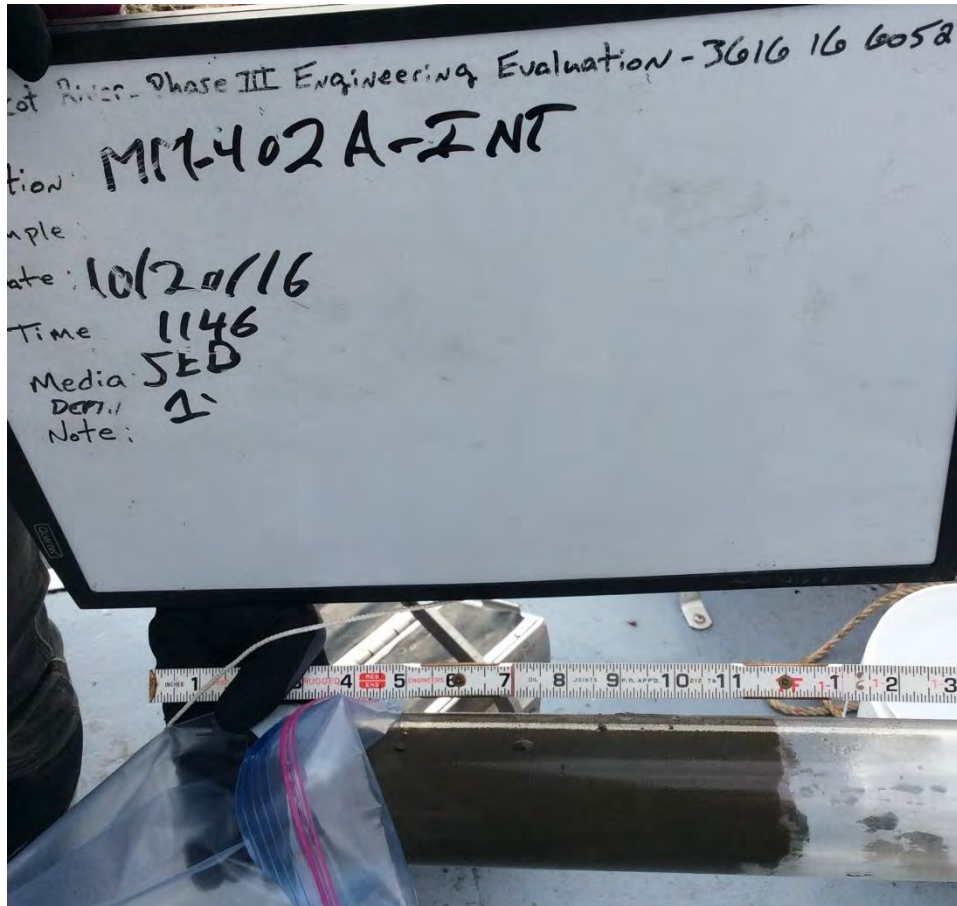
Core sample MM401B-INT / MM51 collected on the right bank of the Marsh River near the western edge of the Heagan Mountain in the Mendall Marsh Reach



**PHOTO 98:**

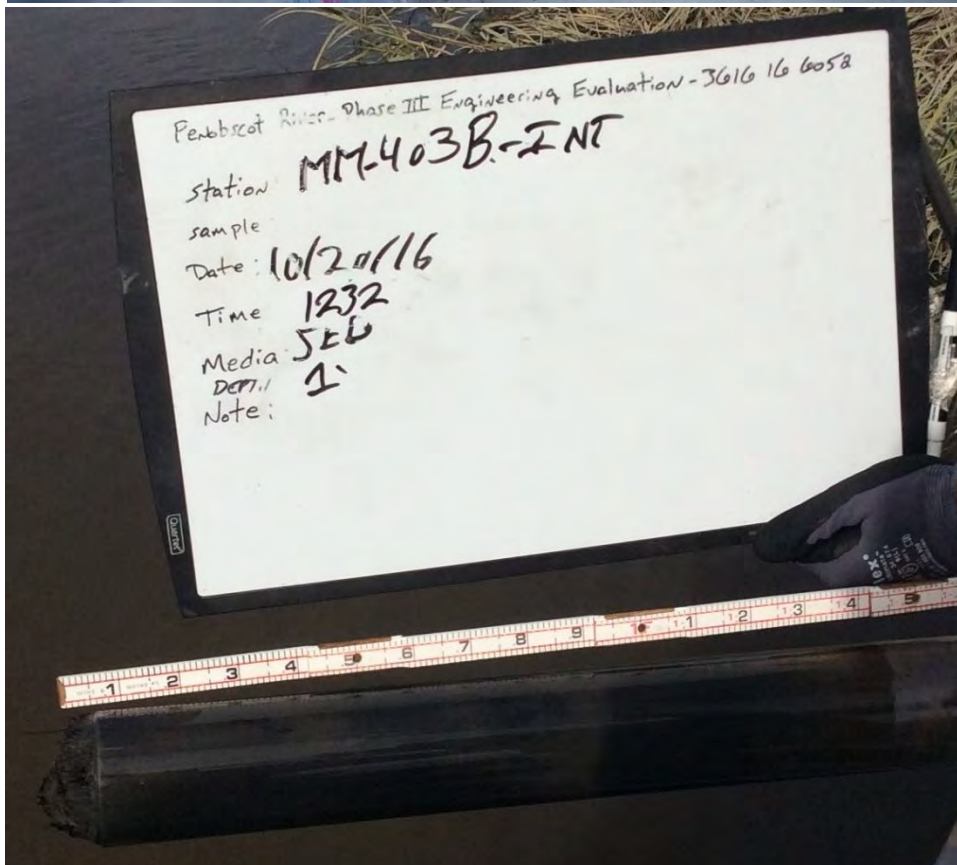
Bulk grab sample MM-401C-SUB was attained in a tidal pool on the Marsh River near the western edge of the Heagan Mountain in the Mendall Marsh Reach





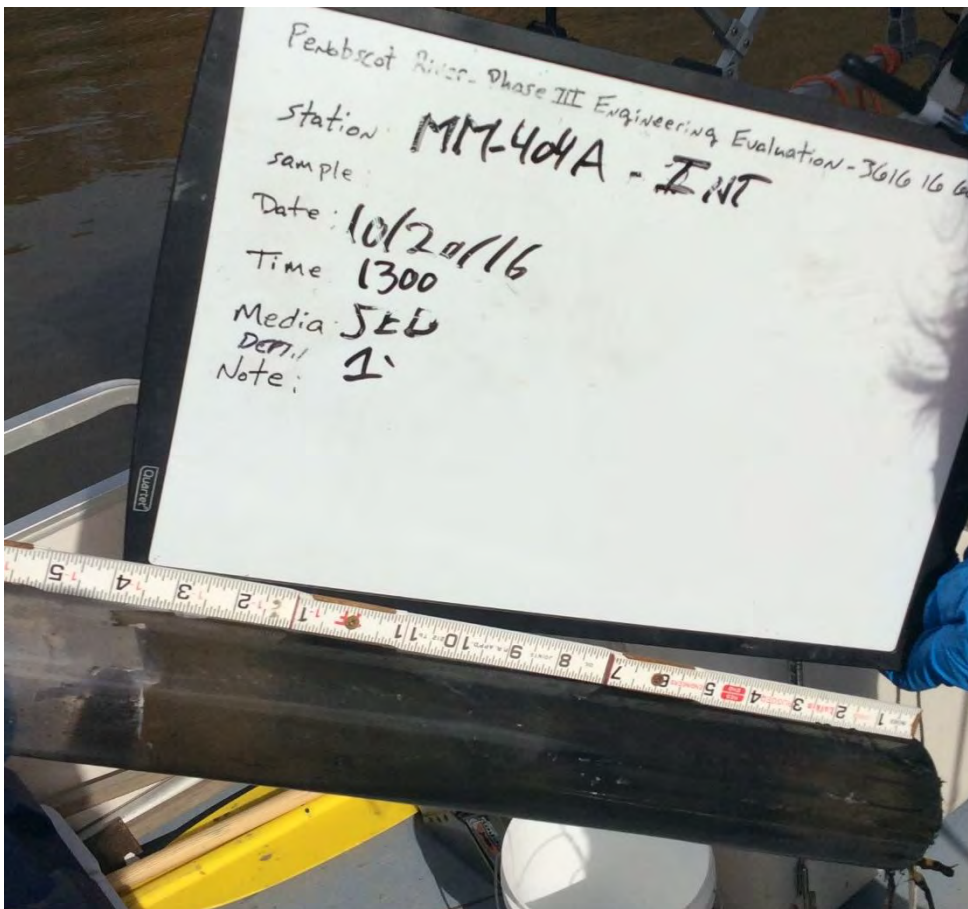
**PHOTO 99:**

Core sample MM402A-INT / MM67 was collected near the left bank of the intertidal channel of the Marsh River in the Mendall Marsh Reach



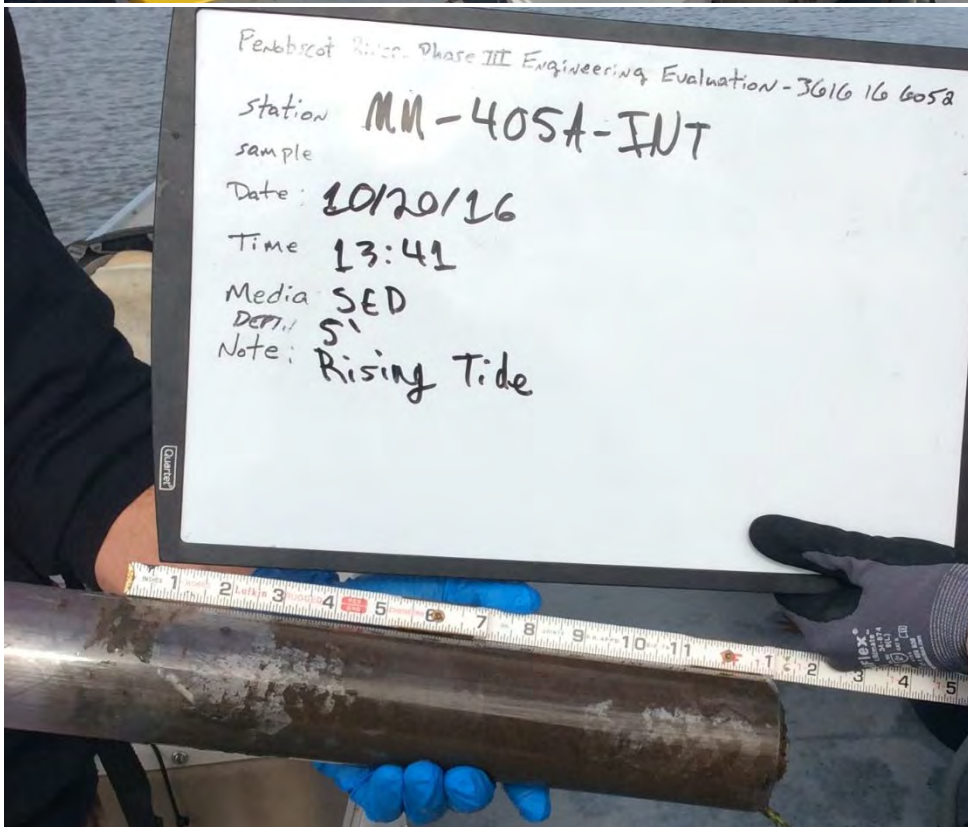
**PHOTO 100:**

Core sample MM-403B-INT / MM53 was collected on the right bank on the intertidal channel of the Marsh River near a gooseneck in the Mendall Marsh Reach



**PHOTO 101:**

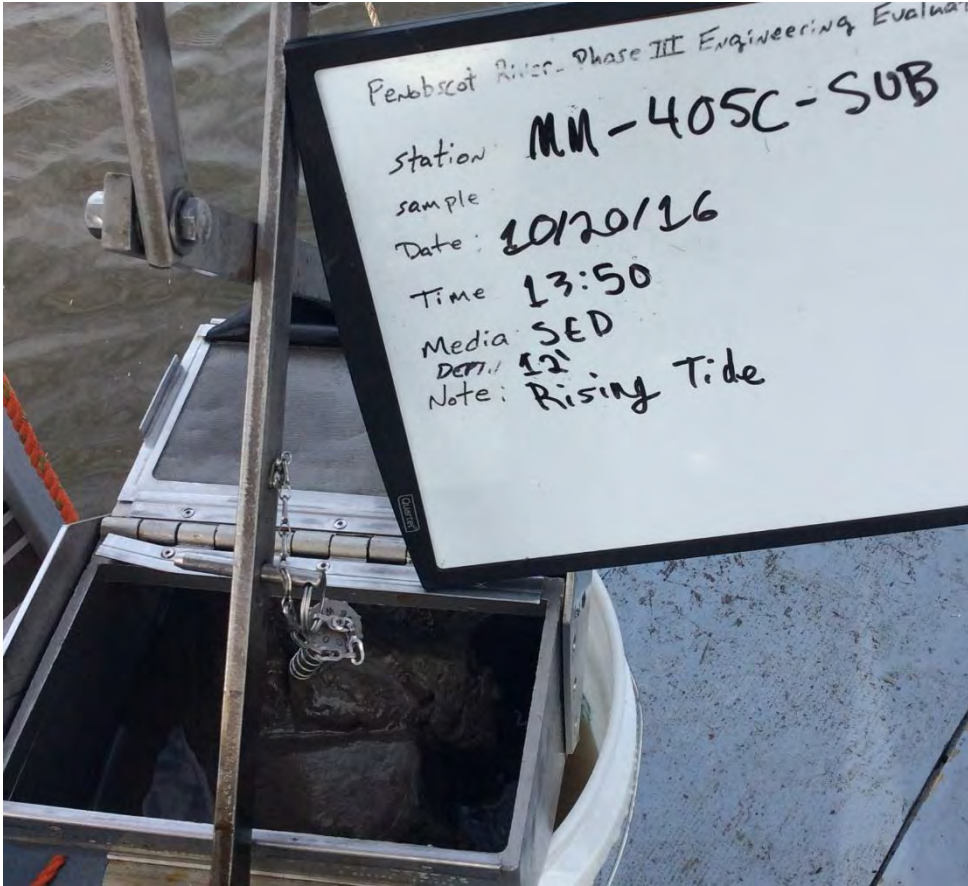
Core sample MM-404A-INT / MM69 was collected on an S-curve near the left bank of the intertidal channel of the Marsh River in the Mendall Marsh Reach



**PHOTO 102:**

Core sample MM-405A-INT / MM70 was collected in the mouth of the Carly Brook meeting up with the South Branch Marsh River intertidal channels on the left bank in the Mendall Marsh Reach





**PHOTO 103:**

Bulk grab sample MM-405C-SUB was attained in the mouth of the Carly Brook meeting up with the South Branch Marsh River intertidal channels in the Mendall Marsh Reach



## **APPENDIX C3**

### **Work Order 4A-020: Photo Log**



**PHOTO 1:**

Decontamination of trough used to homogenize samples



**PHOTO 2:**

Knotting trace mercury clean bag for weighing



**PHOTO 3:**

Clean hands dirty  
hands for liquid  
methylmercury sample



**PHOTO 4:**

Compositing discrete  
sample parts into  
trough for  
homogenization





**PHOTO 5:**  
Homogenization of  
composite sample



**PHOTO 6:**  
Sieve analysis to  
separate the wood chip  
and sediment partitions



PHOTO 7:



PHOTO 8:

Results of sieve analysis





**PHOTO 9:**

Dewatering process of the sediment partition sample



**PHOTO 10:**

Dewatered sediment before being placed into laboratory-provided containers





**PHOTO 11:**

Picture of sample BU50thru52\_SIEVE\_0 2102017 showing sieve analysis result before sample collection.



**PHOTO 12:**

Picture of sample MM57thru62\_SIEVE\_0 2112017 showing sieve analysis result before sample collection.

Composite Lab  
 Sample ID (ID) VE505253\_SIEVE Date 3/7/17 Start time 1400 Prepared  
 (e.g., "CJ01THRU22")

Composite VE50, VE52, VE53  
 Enter the station number, of discrete samples going into composite, and approximate volumes e

Water 4%  
 field salinity  
 Batch 5 collected 03/06/2017  
 Conductivity 1545  
 (Alpha)

Source (Just seal in bucket)

0.43  
 (g) Empty wt(Kg) Net wt (Kg)

Wet Sieve Slurry 14:10 start time  
 Pre-Sieving ID\_Pre  
 Sieve Stack  
 Retained 3/8" #4 #10  
 Combine & weigh Photos Tare wt 0.04

All Samples  
 Record # of j Note MS/MS  
 THg GS/L MeHg Ame Euro

PHOTO 13:

Sample processing field sheet for sample VE505253\_SIEVE\_03 072017.



PHOTO 14:

Content retained in #3/8 sieve for sample VE505253\_SIEVE\_03 072017.





**PHOTO 15:**

Content retained in #4  
sieve for sample  
VE505253\_SIEVE\_03  
072017.



**PHOTO 16:**

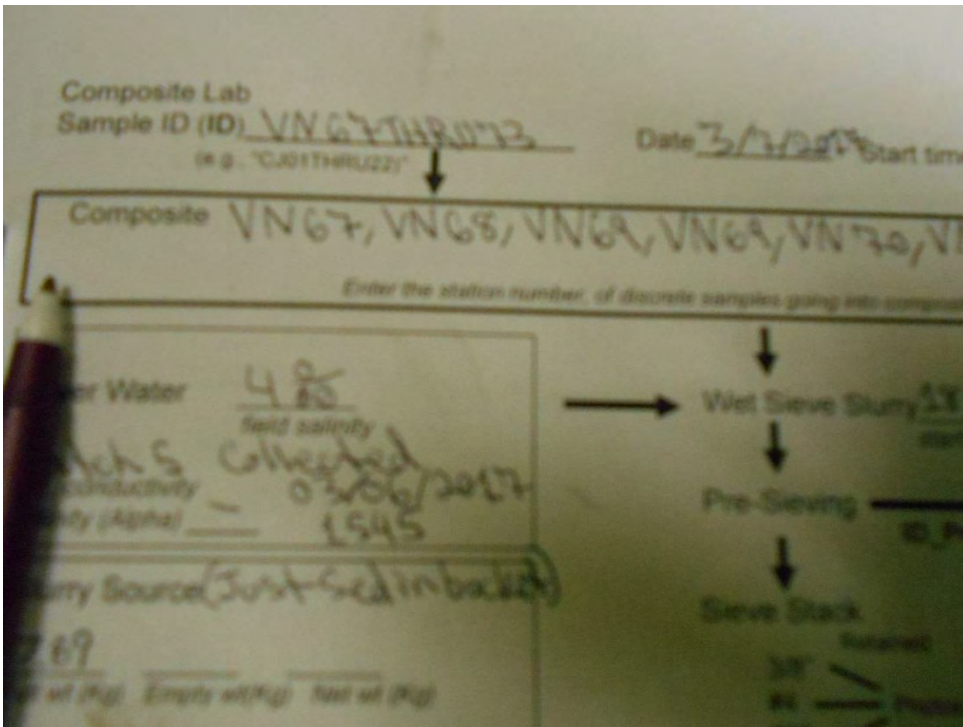
Content retained in #10  
sieve for sample  
VE505253\_SIEVE\_03  
072017.





**PHOTO 17:**

Content retained in #40 sieve for sample VE505253\_SIEVE\_03 072017.



**PHOTO 18:**

Sample processing field sheet for sample VN67Thru73\_SIEVE\_03 072017.





**PHOTO 19:**

Content retained in  
#3/8 sieve for sample  
VN67Thru73\_SIEVE\_0  
3072017.



**PHOTO 20:**

Content retained in #4  
sieve for sample  
VN67Thru73\_SIEVE\_0  
3072017.



**PHOTO 21:**

Content retained in #10  
sieve for sample  
VN67Thru73\_SIEVE\_0  
3072017.





**PHOTO 22:**

Content retained in #40 sieve for sample VN67Thru73\_SIEVE\_03072017.



**PHOTO 23:**

Picture of sample FF5152\_SIEVE\_03082017 showing sieve analysis result before sample collection.



**PHOTO 24:**

Content retained in  
#3/8 sieve for sample  
FF5152\_SIEVE\_03082  
017.



**PHOTO 25:**

Content retained in #4  
sieve for sample  
FF5152\_SIEVE\_03082  
017.





**PHOTO 26:**

Content retained in #10  
sieve for sample  
FF5152\_SIEVE\_03082  
017.





**PHOTO 27:**

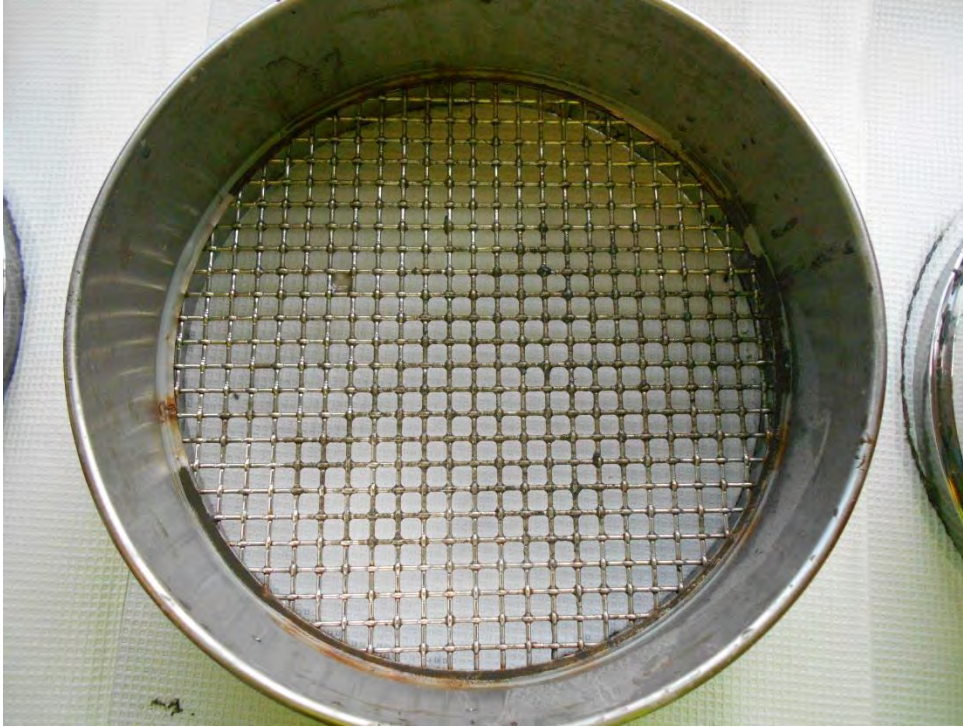
Content retained in #40 sieve for sample  
FF5152\_SIEVE\_03082  
017.



**PHOTO 28:**

Picture of sample  
MM50Thru56\_SIEVE\_  
03092017 showing  
sieve analysis result  
before sample  
collection.





**PHOTO 29:**

Content retained in #3/8 sieve for sample MM50Thru56\_SIEVE\_03092017.



**PHOTO 30:**

Content retained in #4 sieve for sample MM50Thru56\_SIEVE\_03092017.





**PHOTO 31:**

Content retained in #10  
sieve for sample  
MM50Thru56\_SIEVE\_  
03092017.



**PHOTO 32:**

Content retained in #40  
sieve for sample  
MM50Thru56\_SIEVE\_  
03092017.





**PHOTO 33:**

Picture of sample MM68Thru71\_SIEVE\_03092017 showing sieve analysis result before sample collection.



**PHOTO 34:**

Content retained in #3/8 sieve for sample MM68Thru71\_SIEVE\_03092017.





**PHOTO 35:**

Content retained in #4  
sieve for sample  
MM68Thru71\_SIEVE\_  
03092017.



**PHOTO 36:**

Content retained in #10  
sieve for sample  
MM68Thru71\_SIEVE\_  
03092017.





**PHOTO 37:**

Content retained in #40 sieve for sample MM68Thru71\_SIEVE\_03092017.



**PHOTO 38:**

Picture of sample MM64Thru67\_SIEVE\_03092017 showing sieve analysis result before sample collection.





**PHOTO 39:**

Content retained in #3/8 sieve for sample MM64Thru67\_SIEVE\_03092017.



**PHOTO 40:**

Content retained in #4 sieve for sample MM64Thru67\_SIEVE\_03092017.





**PHOTO 41:**

Content retained in #10  
sieve for sample  
MM64Thru67\_SIEVE\_  
03092017.



**PHOTO 42:**

Content retained in #40  
sieve for sample  
MM64Thru67\_SIEVE\_  
03092017.





**PHOTO 43:**

Picture of sample OR\_TRAP1+2\_SIEVE\_03092017 showing sieve analysis result before sample collection.



**PHOTO 44:**

Content retained in #3/8 sieve for sample OR\_TRAP1+2\_SIEVE\_03092017.





**PHOTO 45:**

Content retained in #4  
sieve for sample  
OR\_TRAP1+2\_SIEVE  
\_03092017.



**PHOTO 46:**

Content retained in #10  
sieve for sample  
OR\_TRAP1+2\_SIEVE  
\_03092017.





**PHOTO 47:**

Content retained in #40 sieve for sample OR\_TRAP1+2\_SIEVE\_03092017.



**PHOTO 48:**

Picture of sample ON1\_SIEVE\_03102017 showing sieve analysis result before sample collection.





**PHOTO 49:**

Content retained in  
#3/8 sieve for sample  
ON1\_SIEVE\_0310201  
7.



**PHOTO 50:**

Content retained in #4  
sieve for sample  
ON1\_SIEVE\_0310201  
7.





**PHOTO 51:**

Content retained in #10  
sieve for sample  
ON1\_SIEVE\_0310201  
7.



**PHOTO 52:**

Content retained in #40  
sieve for sample  
ON1\_SIEVE\_0310201  
7.





**PHOTO 53:**

Picture of sample VE\_TRAP2+3\_SIEVE\_03112017 showing sieve analysis result before sample collection.



**PHOTO 54:**

Content retained in #3/8 sieve for sample VE\_TRAP2+3\_SIEVE\_03112017.





**PHOTO 55:**

Content retained in #4  
sieve for sample  
VE\_TRAP2+3\_SIEVE\_  
03112017.



**PHOTO 56:**

Content retained in #10  
sieve for sample  
VE\_TRAP2+3\_SIEVE\_  
03112017.





**PHOTO 57:**

Content retained in #40 sieve for sample  
VE\_TRAP2+3\_SIEVE\_  
03112017.



**PHOTO 58:**

Picture of sample  
BU\_TRAP1+3\_SIEVE\_  
03112017 showing  
sieve analysis result  
before sample  
collection.





**PHOTO 59:**

Content retained in  
#3/8 sieve for sample  
BU\_TRAP1+2\_SIEVE\_  
03112017.



**PHOTO 60:**

Content retained in #4  
sieve for sample  
BU\_TRAP1+2\_SIEVE\_  
03112017.





**PHOTO 61:**

Content retained in #10  
sieve for sample  
BU\_TRAP1+2\_SIEVE\_  
03112017.



**PHOTO 62:**

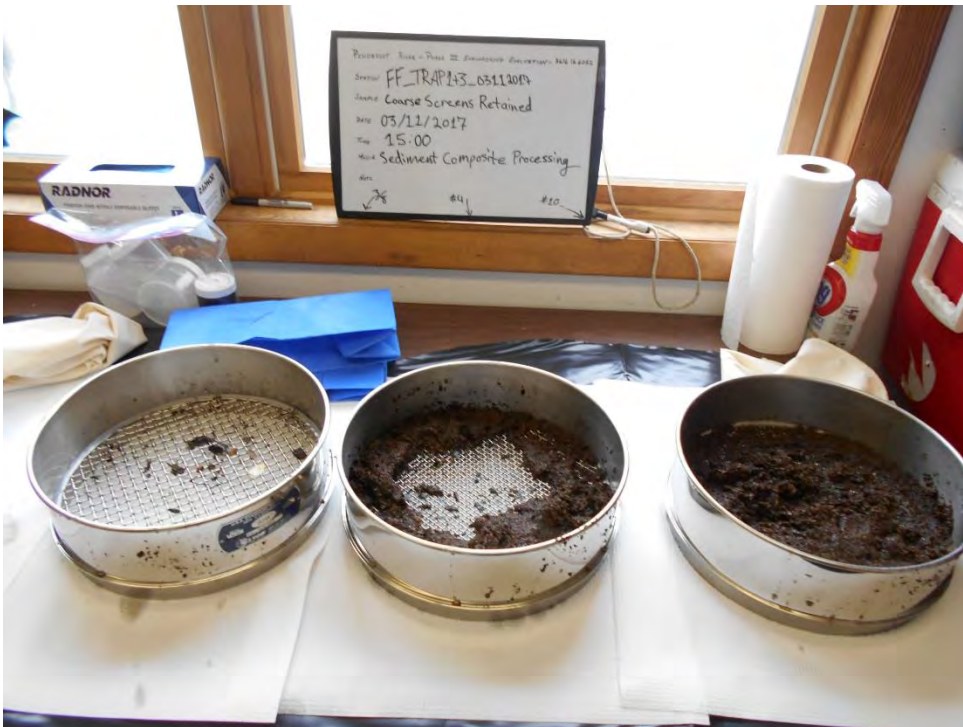
Content retained in #40  
sieve for sample  
BU\_TRAP1+2\_SIEVE\_  
03112017.





**PHOTO 63:**

Picture of sample FF\_TRAP1+3\_SIEVE\_03112017 showing sieve analysis result before sample collection.



**PHOTO 64:**

Picture of sample FF\_TRAP1+3\_SIEVE\_03112017 showing sieve analysis result before sample collection.





**PHOTO 65:**

Content retained in #3/8 sieve for sample FF\_TRAP1+3\_SIEVE\_03112017.



**PHOTO 66:**

Content retained in #4 sieve for sample FF\_TRAP1+3\_SIEVE\_03112017.





**PHOTO 67:**

Content retained in #10  
sieve for sample  
FF\_TRAP1+3\_SIEVE\_  
03112017.



**PHOTO 68:**

Content retained in #40  
sieve for sample  
FF\_TRAP1+3\_SIEVE\_  
03112017.





**PHOTO 69:**

Picture of sample  
FF5354\_SIEVE\_03122  
017 showing sieve  
analysis result before  
sample collection.



**PHOTO 70:**

Content retained in  
#3/8 sieve for sample  
FF5354\_SIEVE\_03122  
017.



**PHOTO 71:**

Content retained in #4  
sieve for sample  
FF5354\_SIEVE\_03122  
017.





**PHOTO 72:**

Content retained in #10  
sieve for sample  
FF5354\_SIEVE\_03122  
017.



**PHOTO 73:**

Content retained in #40  
sieve for sample  
FF5354\_SIEVE\_03122  
017.

## **APPENDIX D FIELD DATA RECORDS**



## **APPENDIX D1**

### **Work Order 3: Field Data Records**







## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M.Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 06/07/16	Time : 12:50	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.582540</b>	<b>Long -68.812130</b>	Plan Volume:	
Sampling Station: Bu26H			
Weather: Warm: 80°F	Winds: Calm	Waters: Calm High Tide	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 2		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions: High Tide, Lawrence Cove		
Mudline (Corrected Depth) @ NAVD88: 27.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1 Ponar "26HA"	20% 0.126	Woodchips with organics OH	Bu26H_060716_SED_G
2 Ponar "26HB"	5% 0.0315	Woodchips with organics OH	
Number of containers:	0.1575 1	gallons	Grab Equipment
Type of container:	bucket	liner bag	jar
			other
			Capacity 2.4 Liter .63 gallons
Live Organisms present	Y (N)	<b>Comments</b> - Done along 2 points in Lawrence Cove - Mudline Kemmer had woodchips Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.  *USCS classification determined by soils lab	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	Y (N)		
<b>Photo Numbers</b>			
BU26H			













## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 06/08/16	Time : 16:40	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.558817</b>	<b>Long -68.744637</b>	Plan Volume:	
Sampling Station: EC38FA			
Weather: 70°F	Winds: 0-5 Knots	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 1		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions:		
Mudline (Corrected Depth) @ NAVD88: 5.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
38A	50% 0.315	Gray Silt ML*	EC38ABCDE_060916_SED_C EC38ABCDE_060916_SED_C_WC EC38ABCDE_060916_ML_C EC38ABCDE_060916_ML_C_Filtered
Number of containers:	0.315 gallons		Grab Equipment
Type of container:	1 bucket	liner bag	jar
			other
			Sampler Type: Petite Ponar
			Capacity 2.4 Liter .63 gallons
Live Organisms present	Y (N)	<b>Comments</b> - Sulfur - Mudline Taken Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area. *USCS classification determined by soils lab	
Oil-Like Present	Y (N)		
Odor Present	(Y) N		
Debris Present	Y (N)		
<b>Photo Numbers</b>	None		



## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: Aqua Survey	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: Aqua Survey	
Date: 06/10/16	Time :	Vessel: Aqua Survey Vessel	
Coordinates: <b>Lat 44.57292</b>	<b>Long -68.809381</b>	Plan Volume:	
Sampling Station: Bu1 (Nessie Head)			
Weather: 70°F	Winds: 0-5 Knots	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 18		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions:		
Mudline (Corrected Depth) @ NAVD88: 51.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1	5%	Woodchips	Bu1_061016_SED_G_WC_DUP
2	1%	One shell	Bu1_061016_SED_G_WC
3	2%	Woodchips	Bu1_061016_Squeeze_G_WC
4	70%	Woodchips, coarse sand, small gravel	Bu1_061016_Squeeze_G_WC_Filtered
5	15%	Woodchips	Bu1_061016_Squeeze_G_WC_Filtered_DUP
6	40%	Woodchips and coarse sand/gravel	
7	25%	Woodchips with few silt, sand and gravel	
8	30%	Gray silt, some woodchips	
9	5%	Gray coarse sand, few woodchips	
10	50%	Woodchips	
11	40%	Woodchips with some coarse sand	
12	10%	Woodchips	
13	10%	Woodchips	
14	0%	Ponar no close	
15	10%	Woodchips, some gravel	
16	30%	Woodchips	
17	50%	Woodchips	
18	5%	Woodchips	
	6.60	gallons recovered	
Number of containers:	3	6 gallons collected	Grab Equipment
Type of container:	bucket	liner bag	jar
		other	Sampler Type: Std. Ponar
			Capacity 8.2 Liters 2.16 gallons
Live Organisms present	Y (N)	<b>Comments</b> Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left homogenized batch. Left over material was disposed of in predetermined area.	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	Y (N)		
<b>Photo Numbers</b>			
NA			





## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M.Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 06/07/16	Time : 08:45	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.592625</b>	<b>Long -68.819070</b>	Plan Volume:	
Sampling Station: Bu19L			
Weather: Warm: 80°F	Winds: Calm	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 2		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions: Low Tide		
Mudline (Corrected Depth) @ NAVD88: 30.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1 Ponar	40% 0.252	Fine sand, Brown/Gray with some woodchips SM*	Bu19L_060716_SED_G Bu19L_060716_SED_G_DUP
2 Ponar	10% 0.063	Fine sand, Brown/Gray with some woodchips SM*	
Number of containers:	0.315 1		Grab Equipment
Type of container:	bucket	liner bag	jar
			other
		Capacity	2.4 Liter .63 gallons
Live Organisms present	Y (N)	<p style="text-align: center;"><b>Comments</b></p> <p>- Kemmer, fine sand with woodchips</p> <p>Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.</p> <p>*USCS classification determined by soils lab</p>	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	Y (N)		
<b>Photo Numbers</b>			
Bu19L			







## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: David Young	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: AquaSurvey	
Date: 06/09/16	Time : 08:45	Vessel: R/V Delaware	
Coordinates: <b>Lat 44.572921</b>	<b>Long -68.809381</b>	Plan Volume:	
Sampling Station: Bu1 (AS1)			
Weather: 65°F	Winds: 0-5 Knots	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 5		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions:		
Mudline (Corrected Depth) @ NAVD88: 51.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1	20% 0.43	Black fine silt, no odro, no woodchips SM*	Bu1_061016_SED_G_WC_DUP Bu1_061016_SED_G_WC
2	15% 0.32	Black fine silt, no odor, no woodchips SM*	Bu1_061016_Squeeze_G_WC Bu1_061016_Squeeze_G_WC_Filtered
3	10% 0.22	Brown woodchips and fractured shells SM*	Bu1_061016_Squeeze_G_WC_Filtered_DUP
4	30% 0.65	Brown woodchips and wood debris, no sediment, no odor	
5	0% 0.00	No Recovery	
Number of containers:	1.62 gallons		Grab Equipment
	1		Sampler Type: Std. Ponar
Type of container:	bucket	liner bag	Capacity 8.2 Liters 2.16 gallons
		jar	
		other	
Live Organisms present	Y (N)	<b>Comments</b> Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left homogenized batch. Left over material was disposed of in predetermined area.	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	(Y) N		
<b>Photo Numbers</b>		*USCS classification determined by soils lab	
None			







## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M.Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 06/07/16	Time : 09:10	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.591720</b>	<b>Long -68.823334</b>	Plan Volume:	
Sampling Station: Bu20L			
Weather: Warm: 80°F	Winds: Calm	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 2		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions: Warm glass with Tide beginning to Rise		
Mudline (Corrected Depth) @ NAVD88: 20.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1 Ponar	40% 0.242	All Woodchips OL*	Bu20L_060716_SED_G
2 Ponar	30% 0.189	All Woodchips OL*	
Number of containers:	0.431 1	gallons	Grab Equipment
Type of container:	bucket	liner bag jar other	Sampler Type: Petite Ponar
			Capacity 2.4 Liter .63 gallons
Live Organisms present	Y <input checked="" type="radio"/> N	<b>Comments</b> - Heavy woodchip area - Tide beginning to Rise Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area. *USCS classification determined by soils lab	
Oil-Like Present	Y <input checked="" type="radio"/> N		
Odor Present	Y <input checked="" type="radio"/> N		
Debris Present	Y <input checked="" type="radio"/> N		
<b>Photo Numbers</b>			
BU20L			







## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt
Date: 06/08/16	Time: 12:45	Vessel: Winterport Skiff

Coordinates: **Lat 44.545329**      **Long -68.765532**      Plan Volume:

Sampling Station: GP34HD

Weather: 70°F	Winds: 0-5 Knots	Waters: High Tide	Traffic: None	Water Temp: 50°F
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Measured Water Depth [NAVD88]:	Total Number of Deployments: 1
Correction to NAVD88 (+/- ft. from NAVD88):	<i>Conditions: High Tide</i>
Mudline (Corrected Depth) @ NAVD88: 21.89' (est)	
Study Depth (-NAVD88):	

#### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
34D Kemmer for 34D	0%	No retrieval High woodchips	No Sediment Sample

Number of containers:	NA			Grab Equipment
Type of container:	bucket	liner bag	jar	other
				Sampler Type: Petite Ponar
				Capacity 2.4 Liter .63 gallons

Live Organisms present	Y	(N)	<b>Comments</b> Mudline collected
Oil-Like Present	Y	(N)	
Odor Present	Y	(N)	
Debris Present	Y	(N)	
<b>Photo Numbers</b>			
None			







## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: David Young	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: Aqua Survey	
Date: 06/09/16	Time : 10:00	Vessel: RV Deleware	
Coordinates: <b>Lat 44.580326</b>	<b>Long -68.812392</b>	Plan Volume:	
Sampling Station: Bu4 (AS4)			
Weather: 65°F	Winds: 0-5 Knots	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]: -36 ft	Total Number of Deployments: 4		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions:		
Mudline (Corrected Depth) @ NAVD88:			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1	10% 0.216	Brown woodchips, no sediment MH*	Bu4_060916_SED_G
2	10% 0.216	Brown woodchips, no sediment MH*	
3	5% 0.108	Brown woodchips, no sediment MH*	
4	0% 0	No Recovery	
Number of containers:	0.540 1	gallons	Grab Equipment
Type of container:	bucket	liner bag	jar
		other	Capacity 8.2 Liters 2.16 gallons
Live Organisms present	Y (N)	<b>Comments</b> Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	Y (N)		
<b>Photo Numbers</b>		*USCS classification determined by soils lab	
BU4			







## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: David Young	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: AquaSurvey	
Date: 06/09/16	Time : 09:25	Vessel: R/V Delaware	
Coordinates: <b>Lat 44.581058</b>	<b>Long -68.819724</b>	Plan Volume:	
Sampling Station: Bu3 (AS3)			
Weather: 65°F	Winds: 0-5 Knots	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]: -36 ft	Total Number of Deployments: 11		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions:		
Mudline (Corrected Depth) @ NAVD88:			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1	10%	Gray, fine silt with woodchips and no odor	Bu3_060916_SED_G
	0.216	ML*	Bu3_060916_SED_G_DUP
2	20%	Gray, fine silt with woodchips and no odor	
	0.432	ML*	
3	90%	Gray, fine silt with woodchips and no odor	
	1.94	ML*	
4	10%	Gray, fine silt with woodchips and no odor	
	0.216	ML*	
5	40%	Gray, fine silt with woodchips and no odor	
	0.864	ML*	
6	20%	Gray, fine silt with woodchips and no odor	
	0.432	ML*	
7	10%	Gray, fine silt with woodchips and no odor	
	0.216	ML*	
8	10%	Gray, fine silt with woodchips and no odor	
	0.216	ML*	
9	10%	Gray, fine silt with woodchips and no odor	
	0.216	ML*	
10	20%	Gray, fine silt with woodchips and no odor	
	0.432	ML*	
11	90%	Gray, fine silt with woodchips and no odor	
	1.94	ML*	
	7.12	gallons collected	
Number of containers:	3	6 gallons stored	Grab Equipment
Type of container:	(bucket)	liner bag	jar
		other	other
		Capacity	8.2 Liters 2.16 gallons
Live Organisms present	Y (N)	<b>Comments</b> Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	Y (N)		
<b>Photo Numbers</b>			
BU3			
		*USCS classification determined by soils lab	



## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M.Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 06/07/16	Time : 09:55	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.589849</b>	<b>Long -68.820973</b>	Plan Volume:	
Sampling Station: Bu21R			
Weather: Warm: 80°F	Winds: Calm	Waters: Rising Tide	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 3		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions: Tide Rising, heavy current		
Mudline (Corrected Depth) @ NAVD88: 18.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1 Ponar	5% 0.0315	Bark and water	Bu21R_060716_SED_G
2 Ponar	40% 0.252	Fine Gray sand with layering woodchips SM*	
3 Ponar	20% 0.126	Black coarse sand and with woodchips, gray fine sand SM*	
Number of containers:	0.4095 1		Grab Equipment
Type of container:	bucket	liner bag	jar
			other
			Capacity 2.4 Liter .63 gallons
Live Organisms present	Y (N)	<b>Comments</b> - First location with definitive layering - Woodchips layer onto gray sand. Woodchip layer about 1" thick, gray sands are hard packed below.	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	Y (N)		
<b>Photo Numbers</b>		Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area. *USCS classification determined by soils lab	
Bu21R			













## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 06/07/16	Time: 11:50	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.588395</b>	<b>Long -68.811686</b>	Plan Volume:	
Sampling Station: Bu24R			
Weather: Warm: 80°F	Winds: None	Waters: Rising Tide	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 2		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions: Rising tide, sample taken in Luce Cove		
Mudline (Corrected Depth) @ NAVD88: 5.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1 Ponar	30% 0.189	Brown silt with some gravel and organics ML*	Bu24R_060716_SED_G
2 Ponar	10% 0.063	Brown silt with some gravel and organics ML*	
Number of containers:	0.252 gallons	Grab Equipment	
	1	Sampler Type: Petite Ponar	
Type of container:	bucket	Capacity 2.4 Liter	.63 gallons
Live Organisms present	Y <input checked="" type="radio"/> N	<b>Comments</b> Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.	
Oil-Like Present	Y <input checked="" type="radio"/> N		
Odor Present	Y <input checked="" type="radio"/> N		
Debris Present	Y <input checked="" type="radio"/> N		
<b>Photo Numbers</b>		*USCS classification determined by soils lab	
Bu24R			



## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M.Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 06/07/16	Time : 12:15	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.583884</b>	<b>Long -68.811150</b>	Plan Volume:	
Sampling Station: Bu25H			
Weather: Warm: 80°F	Winds: Calm	Waters: High Tide	
		Traffic: None	
		Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 3		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions: High Tide in Lawrence Cove		
Mudline (Corrected Depth) @ NAVD88: 5.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1 Ponar	5% 0.0315	Cobble	No Sample
2 Ponar	0% 0	No Recovery	
3 Ponar	5% 0.0315	Cobble	
Number of containers:	N/A		Grab Equipment
Type of container:	bucket	liner bag	jar
			other
			Capacity 2.4 Liter .63 gallons
Live Organisms present	Y	<b>Comments</b> - High tide in Lawrence Cove	
Oil-Like Present	Y		
Odor Present	Y		
Debris Present	Y		
<b>Photo Numbers</b>			
None			







## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt
Date: 06/07/16	Time :	Vessel: Winterport Skiff
Coordinates: <b>Lat 44.5888278452378</b>	<b>Long -68.8148650274596</b>	Plan Volume:
Sampling Station: Bu27H		
Weather: 80°F	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: 50°F
Measured Water Depth [NAVD88]:	Total Number of Deployments: 1	
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions:	
Mudline (Corrected Depth) @ NAVD88: 29.89' (est)		
Study Depth (-NAVD88):		

#### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1		Woodchips OL*	Bu27H_060716_SED_G

Number of containers:	1				Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type: Petite Ponar
					Capacity 2.4 Liter .63 gallons

Live Organisms present	Y	<input checked="" type="radio"/> N	<p style="text-align: center;"><b>Comments</b></p> <p>Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.</p> <p>*USCS classification determined by soils lab</p>
Oil-Like Present	Y	<input checked="" type="radio"/> N	
Odor Present	Y	<input checked="" type="radio"/> N	
Debris Present	Y	<input checked="" type="radio"/> N	
<b>Photo Numbers</b>			
BU27H			



## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M.Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 06/07/16	Time :	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.586277</b>	<b>Long -68.818595</b>	Plan Volume:	
Sampling Station: Bu28H			
Weather: 80°F	Winds: 0-5 Knots	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 2		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions:		
Mudline (Corrected Depth) @ NAVD88: 21.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1	10% 0.063	Gray fine sand with woodchips ML*	Bu28H_060716_ML_G Bu28H_060716_ML_G_Filtered
2	30% 0.189	Gray fine sand with woodchips ML*	Bu28H_060716_SED_G Bu28H_060716_ML_C
Number of containers:	0.252 1		Grab Equipment
Type of container:	bucket	liner bag	jar
			other
			Capacity 2.4 Liter .63 gallons
Live Organisms present	Y <input type="radio"/> N <input checked="" type="radio"/>	<b>Comments</b> - Mudline Taken Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.  *USCS classification determined by soils lab	
Oil-Like Present	Y <input type="radio"/> N <input checked="" type="radio"/>		
Odor Present	Y <input type="radio"/> N <input checked="" type="radio"/>		
Debris Present	Y <input type="radio"/> N <input checked="" type="radio"/>		
<b>Photo Numbers</b>			
BU28H			















## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt
Date: 06/06/16	Time : 13:05	Vessel: Winterport Skiff

Coordinates: **Lat 44.615588**                      **Long -68.855298**                      Plan Volume:

Sampling Station: FF3H

Weather: 80°F	Winds: 0-5 Knots	Waters: Calm	Traffic: None	Water Temp: 50°F
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Measured Water Depth [NAVD88]:	Total Number of Deployments: 2
Correction to NAVD88 (+/- ft. from NAVD88):	<i>Conditions:</i>
Mudline (Corrected Depth) @ NAVD88: 10.89' (est)	
Study Depth (-NAVD88):	

#### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
Ponar 1	10% 0.063	Fine sand with rocks SM*	FF3H_060616_SED_G
Ponar 2	30% 0.189	Fine sand and silt with organics and small woodchips SM*	

Number of containers:	0.252	gallons			Grab Equipment
Type of container:	1	bucket	liner bag	jar	other
					Sampler Type: Petite Ponar
					Capacity 2.4 Liter .63 gallons

Live Organisms present	Y (N)	<p style="text-align: center;"><b>Comments</b></p> <p>- Kemmer, light turbid brown</p> <p>Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.</p> <p>*USCS classification determined by soils lab</p>
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	(Y) N	
<b>Photo Numbers</b>		
FF3H		











## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 06/08/16	Time : 16:40	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.551992</b>	<b>Long -68.746551</b>	Plan Volume:	
Sampling Station: EC38FC			
Weather: 70°F	Winds: 0-5 Knots	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 1		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions:		
Mudline (Corrected Depth) @ NAVD88: 7.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
38C	80% 0.504	Gray Silt with some woodchips throughout ML*	EC38ABCDE_060916_SED_C EC38ABCDE_060916_SED_C_WC EC38ABCDE_060916_ML_C EC38ABCDE_060916_ML_C_Filtered
Number of containers:	0.504 gallons		Grab Equipment
Type of container:	1 bucket	liner bag	jar
			other
			Sampler Type: Petite Ponar
			Capacity 2.4 Liter .63 gallons
Live Organisms present	Y (N)	<b>Comments</b> - Sulfur - Mudline Taken Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area. *USCS classification determined by soils lab	
Oil-Like Present	Y (N)		
Odor Present	(Y) N		
Debris Present	Y (N)		
<b>Photo Numbers</b>	None		























## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 6/7/16	Time : 14:00 2:30	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.549083</b> <b>Long -68.771147</b>		Plan Volume:	
Sampling Station: GP35HC			
Weather: Warm: 80°F	Winds: 0-5 Knots	Waters: High Tide	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 1		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions:		
Mudline (Corrected Depth) @ NAVD88: 5.89' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
35C	20% 0.126	Gray Silt MH*	GP35ABC_060916_SED_C
Number of containers:	0.126 1	gallons	Grab Equipment
Type of container:	bucket	liner bag	jar
			other
			Capacity 2.4 Liter .63 gallons
Live Organisms present	Y (N)	<b>Comments</b>	
Oil-Like Present	Y (N)		
Odor Present	(Y) N		
Debris Present	Y (N)		
<b>Photo Numbers</b>	- Sulfur Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.  *USCS classification determined by soils lab		
None			









## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt
Date: 06/08/16	Time: 18:30	Vessel: Winterport Skiff

Coordinates: **Lat 44.525995**                      **Long -68.755244**                      Plan Volume:

Sampling Station: EC41FB

Weather: 70°F	Winds: 0-5 Knots	Waters: Falling Tide	Traffic: None	Water Temp: 50°F
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Measured Water Depth [NAVD88]:	Total Number of Deployments: 1
Correction to NAVD88 (+/- ft. from NAVD88):	<i>Conditions: Falling Tide</i>
Mudline (Corrected Depth) @ NAVD88: 19.89' (est)	
Study Depth (-NAVD88):	

#### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
41B		Clear Water, Woodchips	EC41ABCDE_060916_SED_C

Number of containers:	1				Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type: Petite Ponar
					Capacity 2.4 Liter .63 gallons

Live Organisms present	Y	(N)
Oil-Like Present	Y	(N)
Odor Present	Y	(N)
Debris Present	Y	(N)

**Photo Numbers**  
None

**Comments**

- Kemmer Reservoirs were the same, samplers were combined  
Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.







































## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: D. Young	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: AquaSurvey	
Date: 06/08/16	Time : 15:25	Vessel: AquaSurvey	
Coordinates: <b>Lat 44.482872</b>	<b>Long -68.795767</b>	Plan Volume:	
Sampling Station: FPC 2			
Weather: 70°F	Winds: 0-5 Knots	Waters: Calm	
	Traffic: None	Water Temp: 54°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 1		
Correction to NAVD88 (+/- ft. from NAVD88):	<i>Conditions:</i>		
Mudline (Corrected Depth) @ NAVD88: 47.38' (est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1	30% 0.648	Gray fine sandy silt, no odor, no woodchips ML*	FPC2_060816_SED_G FPC2_060816_SED_G_MSD FPC2_060816_SED_G_MS
Number of containers:	0.648 1	gallons	Grab Equipment
Type of container:	bucket	liner bag	jar
			other
			Capacity 8.2 Liters 2.16 gallons
Live Organisms present	Y (N)	<p style="text-align: center;"><b>Comments</b></p> <p>Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.</p> <p>*USCS classification determined by soils lab</p>	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	Y (N)		
<b>Photo Numbers</b>	none		









## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt	
Date: 6/7/16	Time : 14:00 2:30	Vessel: Winterport Skiff	
Coordinates: <b>Lat 44.557221</b>	<b>Long -68.7732702</b>	Plan Volume:	
Sampling Station: GP35HA			
Weather: Warm: 80°F	Winds: 0-5 Knots	Waters: High Tide	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]:	Total Number of Deployments: 1		
Correction to NAVD88 (+/- ft. from NAVD88):	Conditions:		
Mudline (Corrected Depth) @ NAVD88: 5.89'(est)			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
35A	20% 0.126	Dark Gray Silt MH*	GP35ABC_060916_SED_C
Number of containers:	0.126 1	gallons	Grab Equipment
Type of container:	bucket	liner bag	jar
			other
			Capacity 2.4 Liter .63 gallons
Live Organisms present	Y (N)	<b>Comments</b>	
Oil-Like Present	Y (N)		
Odor Present	(Y) N		
Debris Present	Y (N)		
<b>Photo Numbers</b>	- Sulfur Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.  *USCS classification determined by soils lab		
None			





























## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: C. Platt
Date: 06/09/16	Time: 10:40	Vessel: Winterport Skiff

Coordinates: **Lat 44.50394**                      **Long -68.789408**                      Plan Volume:

Sampling Station: OD1 (AS5)

Weather: 65°F	Winds: 0-5 Knots	Waters: Calm	Traffic: None	Water Temp: 50°F
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Measured Water Depth [NAVD88]: -16 ft	Total Number of Deployments: 2
Correction to NAVD88 (+/- ft. from NAVD88):	<i>Conditions:</i>
Mudline (Corrected Depth) @ NAVD88:	
Study Depth (-NAVD88):	

#### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	20% 0.432	Gray silt with fine sand, no odor, no woodchips	OD1_060916_SED_G
2	40% 0.864	Gray sandy silt with fine sand, no odor, no woodchips	
		OL*	

Number of containers:	1.296	gallons			Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type: Std. Ponar
					Capacity 8.2 Liters 2.16 gallons

Live Organisms present	Y (N)	<p style="text-align: center;"><b>Comments</b></p> <p>Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.</p> <p>*USCS classification determined by soils lab</p>
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	Y (N)	
<b>Photo Numbers</b>		
None		





## Penobscot River Mercury Study - Phase III Engineering Study

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: David Young	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: AquaSurvey	
Date: 06/09/16	Time: 10:55	Vessel: R/V Delaware	
Coordinates: <b>Lat 44.5077</b>	<b>Long -68.80195</b>	Plan Volume:	
Sampling Station: OD2 (AS6)			
Weather: 65°F	Winds: 0-5 Knots	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]: - 71 ft	Total Number of Deployments: 4		
Correction to NAVD88 (+/- ft. from NAVD88):	<i>Conditions:</i>		
Mudline (Corrected Depth) @ NAVD88:			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1	0% 0	Ponar did not close Gray	OD2_060916_SED_G
2	30% 0.648	Fine sandy silt mixed with shells and gravel, gravel 1-3"	
3	0% 0	No Recovery	
4	50% 1.08	Fine sandy silt mixed with shells and gravel, gravel 1-3"	
		SC-SM*	
Number of containers:	1.728 1	gallons	Grab Equipment
Type of container:	bucket	liner bag	jar
			other
			Capacity 8.2 Liters 2.16 gallons
Live Organisms present	Y (N)	<p style="text-align: center;"><b>Comments</b></p> <p>Materials were stored in cold storage (4°C) inside of sampling bucket before going to homogenization area. After homogenization the samples were taken out of homogenized batch. Left over material was disposed of in predetermined area.</p> <p>*USCS classification determined by soils lab</p>	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	Y (N)		
<b>Photo Numbers</b>			
None			





## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: David Young	
Sub: AquaSurvey, Inc.	WO: 3 - Geophysical	Crew: AquaSurvey	
Date: 06/09/16	Time : 11:05	Vessel: R/V Delaware	
Coordinates: <b>Lat 44.512223</b>	<b>Long -68.806839</b>	Plan Volume:	
Sampling Station: OD4 (AS7)			
Weather: 65°F	Winds: 0-5 Knots	Waters: Calm	
	Traffic: None	Water Temp: 50°F	
Measured Water Depth [NAVD88]: - 58 ft	Total Number of Deployments: 3		
Correction to NAVD88 (+/- ft. from NAVD88):	<i>Conditions:</i>		
Mudline (Corrected Depth) @ NAVD88:			
Study Depth (-NAVD88):			
<b>All Recovered Quantities are in Estimated Gallons</b>			
Deployment	Recovery	Description	Sample ID
1	0% 0	No Recovery	No Sample
2	2% 0.0432	Gravel piece, 3" sediment likely escaped ponar while retrieving	
3	5% 0.108	Gravel piece, 6-8", sediment likely escaped ponar during retrieval. 3 brittle stars attached to gravel piece	
Number of containers:	NA		Grab Equipment
Type of container:	bucket	liner bag	jar
	other		Grab Equipment
			Sampler Type: Std. Ponar
			Capacity 8.2 Liters 2.16 gallons
Live Organisms present	(Y) N	<b>Comments</b>	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	Y (N)		
<b>Photo Numbers</b>			
None			



## **APPENDIX D2**

### **Work Order 3A: Field Data Records**

## **CORE AND GRAB LOGS**



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: KC CW MM
Date: 10/18/16	Time: 0901	Vessel: Pamela
Coordinates: Lat 44.58912050	Long - 68.82558606	Plan Volume: -
Sampling Station: BU300-int / BU50		
Weather: <del>Overcast</del> 10/50°F	Winds: 0-5 knots	Waters: calm
Traffic: none	Water Temp: -	
Measured Water Depth [NAVD88]: 1.5'	Total Number of Deployments: -	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Conditions: -	
Mudline (Corrected Depth) @ NAVD88: -3.39'		
Study Depth (NAVD88): -3.76'		

### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	50%	FIRM FN sand with scattered silt. Poorly graded. Very loose density. Saturated.	GLE11 3/10 Y.
2	10% occ.	Scattered sand with scattered twigs	
3	0%	Brick in jaw	
4	0%		

Composite Sample. BUSO THRU 52 - SIEVE - 02092017

Number of containers: 1-5 gal	1-1 gal	-	-	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type <del>S</del> - PONAR
				Capacity

Live Organisms present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	Comments twigs acquiring of sample was made via shovel and PONAR (1/5 gal bucket)
Oil-Like Present	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
Odor Present	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
Debris Present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Photo Numbers	Tablet #12 IMG-0040	

shovel AND standard PONAR

1/1 gal bag

Checked 3/28/2017 KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MD
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: KCUWMM
Date: 10/18/16	Time: 1000	Vessel: Panda
Coordinates: Lat 44.52689633	Long -68.3249517	Plan Volume: -
Sampling Station: BU301-INT / BU51		
Weather: cloudy	Winds: 0-knot	Waters: calm
	Traffic: none	Water Temp: -
Measured Water Depth [NAVD88]: 1.71	Total Number of Deployments: -	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Conditions: -	
Mudline (Corrected Depth) @ NAVD88: 1.21'		
Study Depth (NAVD88): 0.81'		

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1-5gal bucket		Silt. scat FN sand Non-plant. Very soft con. 10YR 4/2 scat sawdust size WC. occ particle size WC scat twigs and pine needles slight sulfur-like odor.	Non-col.
		Discrete Sample, BU51-10182016-SED	
		Composite Sample, BU50THRUS2-SIEVE-02092017-*	
			Insert partition segment of name

Number of containers: 1-5gal	-	-	-	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type: standard Penetration Shovel
				Capacity: -

Live Organisms present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	Comments 2/19/2017 @ 13:00: Homogenized and Discrete Sample BU51-10182016-SED analyzed by Eurofins for Total Hg and Methyl; Amec Foster Wheeler-Durham for (Organic content and grain size); Alpha for Lloyd-Kahn and Total Hg
Oil-Like Present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Odor Present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Debris Present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Photo Numbers	N/A	

D422 Grain Size w/ Hydrometer, D2974 OC @ TBD, 440C, 550C, and 750C

Checked  
3/28/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: MB  
 Sub: AquaSurvey WO: ~~Geophysical~~ Crew: KC (U)  
 Date: 10/19/16 Time: 1021 Vessel: Panola  
 Coordinates: Lat 44.58020633 Long -68.82182867 Plan Volume: —  
 Sampling Station: BU302-147 / BUS2  
 Weather: Cloudy Winds: 0-5 knots Waters: calm Traffic: none Water Temp: —  
 Measured Water Depth (NAVD88): 1.2 Total Number of Deployments: —  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: +3.91'  
 Study Depth (NAVD88): +3.51'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
<u>5 gal bucket</u>		<u>Silt, Non-chem. Non-plus. Very soft. Grt 1 3/4". Silt sand dust size &amp; scat particle size WC scat twigs. TR polychaete slight sulfur like odor.</u>	
<u>Composite Sample BUS0THRU52-SIEVE-02092017</u>			

Number of containers: 1-5gal — — — Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type SHOVEL  
 Capacity —

Live Organisms present    
 Oil-Like Present    
 Odor Present    
 Debris Present    
 Photo Numbers  
Tablet #12  
IMG-0042

Comments  
Had to take sample via shovel  
 from Panola in intertidal zone currently  
 covered in water since Panola was  
 unable to access shore.

Checked  
 3/28/2017  
 KC







amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: *K. BAVOR*  
 Sub: AquaSurvey *075 E.M* WO: ~~3-Geophysical~~ Crew: *C. PLATT, K. CASH*  
 Date: *10-8-16* Time: *1500* Vessel: *FIRST TERN*  
 Coordinates: Lat *44.41298400N* Long *68.81538550W* Plan Volume: *2 GAL*  
 Sampling Station: *CJ-SUB-416501*  
 Weather: *OVERCAST* Winds: *15-20 KTS* Waters: *3-4 SWELL* Traffic: *1* Water Temp: *50.5*  
 Measured Water Depth [NAVD88]: *115* Total Number of Deployments: *9*  
 Correction to NAVD88 (+/- ft. from NAVD88): *-5.38'* Conditions: *—*  
 Mudline (Corrected Depth) @ NAVD88: *-111.38'*  
 Study Depth (NAVD88): *-111.91'*

### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
<i>1,2</i>	<i>0</i>	<i>NO TRIP</i>	
<i>3</i>	<i>76%</i>	<i>0 - BROWN 2.5 Y 4/3 medium sandy silt w/ shell fragments/ bivalves/snails/polychaete-tube worms 1-4 FINE-MEDIUM SAND, SANDY SILT 4.5 FINE SANDY SILT-SULPHUR-CRACK CLAY 1 - 3/107</i>	
<i>4,5</i>	<i>0</i>	<i>1. Rock - GRAVEL PIN DID NOT RELEAS</i>	
<i>6</i>	<i>5%</i>	<i>0"-2" FN - Med SAND, TR shell fragments 2"-3" silty sand, clay 2-3/107</i>	
<i>8</i>	<i>0%</i>	<i>Rock holding open</i>	
<i>9</i>	<i>0%</i>	<i>No material</i>	

*Discrete Sample CJ01-10082016-SED*

*Composited to CJ01 THRU 22 - SIEVE - 02092017*

Number of containers:	<i>1-2gal</i>				Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type <i>PONAR 46</i> Capacity <i>1.5 gal standard</i>

Live Organisms present	<input checked="" type="checkbox"/> <i>N</i>	<i>Polychaete in tube/scallop/mahogany clam/drill Homogenized 2/17/2017 16:30. Discrete Sample CJ01-10082016-SED analyzed by EuroFins for total Hg and Methyl Hg; by Amec Foster Wheeler - Durham for organic content DARTH@TBD and grain size (D422)</i>
Oil-Like Present	<input checked="" type="checkbox"/> <i>N</i>	
Odor Present	<input checked="" type="checkbox"/> <i>N</i>	
Debris Present	<input checked="" type="checkbox"/> <i>N</i>	
Photo Numbers	<i>Tablet #10 IMG-0181 to IMG-0183</i>	

*CJ-SUB 5 temporary abundant do to 41 work  
and rock shell @ 15:45*

*Checked  
4/13/2017  
KC*





Penobscot River Mercury Study - Phase III Engineering Evaluation  
**SEDIMENT GRAB LOG**

Owner: USDC, District of Maine Project No. 3616166052 Logger: K. RAYOR  
 Sub: AquaSurvey 0776 ESTUARINE WO: 2 - Geophysical Crew: C. PLATT K. CASEY  
 Date: 10-8-16 Time: 1300 Vessel: FIRST TEAM  
 Coordinates: Lat 44.45159750° N Long 68.83403233° W Plan Volume: BGAL  
 Sampling Station: CJ-SUB-3 / C303  
 Weather: OVERCAST SUN Winds: 12-15 KAS Waters: 200 FOOT SWATH Traffic: SAIL BOAT Water Temp: 50-55°F  
 Measured Water Depth (NAVD88): 76' Total Number of Deployments: 8  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: -  
 Mudline (Corrected Depth) @ NAVD88: -76.38'  
 Study Depth (NAVD88): -77.13'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	TRACE		
2	100%	BLACK FINE PARTICLE. SILT. TRACE FINE SAND. GREYISH BROWN, SOFT, NONE PLASTIC OR COHESIVE	
3 & 4	- NO CLOSURE		
5	TRACE	SILT - "BALLS"	
6	60%	SILT - TRACE FINE SAND. NOT COHESIVE OR PLASTIC GREYISH BROWN. GREY 3/10Y. INCREASE COHESIVE 6.2-0.7 TRACE BLACK & BROWN STREAKS SHELL FRAGMENTS, ROOTS LEAF STEM TOP SURFACE 2.5Y 4/3 "SLOTTHES" IN 5Y 4/3 OVERLY OLEY 1 3/10Y	
7	5%	SAME AS #2	
8	100%	BROWNISH GRAY SILT - TRACE FINE SAND SONICOHESIVE / LOW PLASTICITY SOFT BLACK STREAKS. POLYCHAETS WORM DETAILS (2" x 3/8")	
		KCS	

Discrete Sample  
 C303-10082016-SED  
 Compositing to  
 C301 THRU 22 - SITE - 02092017

Number of containers: 1-2gal Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type PONAR LG  
 Capacity N 1.5 gal

Live Organisms present  N - POLYCHAETS  
 Oil-Like Present  SLIGHT OIL  
 Odor Present  N  
 Debris Present  N  
 Photo Numbers N/A  
 Comments: 2/7/2017! Homogenized and Discrete Sample C303-10082016-SED analyzed by Eurofins for total Hg and methyl Hg; Amec Foster Wheeler - Durham for organic content and grain sizes  
6/29/14 @ TBD

Checked  
 4/13/2017  
 KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052  
 Sub: ~~Aquatic Survey~~ ~~0715 ENTIRE~~ ~~WO: 3 - Geophysical~~ Logger: K. BAYOL  
 Date: 10/8/2016 Time: 1150 Crew: C. PLATT/K. CASEY  
 Vessel: FIRST TEAM  
 Coordinates: Lat 44.44410817 N Long 78.04129433 W Plan Volume: 200AL  
 Sampling Station: CJ-SUB-14/C304  
 Weather: SW/CLOUD Winds: 10-12 KTS Waters: CHANNY-3' SW Traffic: NONE Water Temp: 52-58F  
 Measured Water Depth [NAVD88]: 76' Total Number of Deployments: 8  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: SHIPPING LANE  
 Mudline (Corrected Depth) @ NAVD88: -78.13'  
 Study Depth (NAVD88): -78.36'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	10%	GREY. BROWN SILT - TRACES FINE SAND NON COHESIVE NONE PLASTIC, GLEY 1-3/10Y	Discrete sample C304-10082016-56D
2	30%	TRACE LT. BROWN SURFACE, SILT FINE SAND, BLACK STREAKING SAME AS #1	Composited log C304THRU22-SUB-02090014
3	5%	ORGANIC - LEAF STEM, TUBE WORM SAME AS #2	
4	30%	NO ORGANICS SAME AS #2 - NO ORGANICS	
5	TRACE	w/ FINE BLACK PARTICLES	
6	TRACE	SAME AS #2	
7	15%	LT BROWN SURFACE, BLACK STREAKING 2-3" SILT	
8	100%	SHELL IN JAW - SILT SAME AS #2	

Number of containers: <sup>one</sup> 2 gal  
 Type of container: bucket liner bag jar other  
 Grab Equipment: PONAR  
 Sampler Type: PLASTIC  
 Capacity: 1.5 gal Standard

Live Organisms present:  N  
 Oil-Like Present:  Y  
 Odor Present:  Y  
 Debris Present:  N  
 Photo Numbers: Tablet #10 IMG-0166 to IMG-0169  
 Comments: FINE BLACK PARTICLES IN SUPERNATANT LIQUID Discrete Sample C304-10082016-56D SHALLS analyzed by Eurofins for Total Hg and Methyl Hg; Amec Foster Wheeler - Durham for organic content and grain size. Homogenized 2/7/16 @ 15:55.

NOTE SAMPLES FROM 10-7-16 - OBSERVE FINE BLACK PARTICLES WHERE SILT-SANDS WERE COLLECTED

Checked 4/3/2017





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: **KC**  
 Sub: ~~AquaSurvey~~ **OTIS ENT.** WO: ~~2 Geophysical~~ Crew: **CPFKB**  
 Date: **8 Oct 2016** Time: **10:20** Vessel: **Fish Team**  
 Coordinates: Lat **44.43804** Long **-68.8456** Plan Volume: **1.2g**  
 Sampling Station: **CJ - SUB 2 / CJ05**  
 Weather: **60's foggy** Winds: **light** Waters: **~1'** Traffic: **None** Water Temp: **58°**  
 Measured Water Depth [NAVD88]: **71'** Total Number of Deployments: **3**  
 Correction to NAVD88 (+/- ft. from NAVD88): **-5.38'** Conditions: **Shipping lane**  
 Mudline (Corrected Depth) @ NAVD88: **-74.13'**  
 Study Depth (NAVD88): **-74.81'**

All Recovered Quantities are in Estimated Gallons Percent

Deployment	Recovery	Description	Sample ID
1	0%	fully closed	Discrete Sample CJ05-10072016-SED
2	30%	Gley 1 3/4", silt	Composited to CJ01 THRU 22 - SIEVE - 01092017
3	90%	1/8" light brown silt, 1/16" - 1/8" Same as 2 1 1/2" - 7" same, but STPP w/ some dark brown @ 4" 1 scallop shell fragment	

Number of containers: **2g** Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type **Paper**  
 Capacity **Standard**

Live Organisms present **Y**  **N**  
 Oil-Like Present **Y**  **N**  
 Odor Present **Y**  **N**  
 Debris Present **Y**  **N**  
 Photo Numbers  
**Tablet # 10**  
**IMG-0154 +**  
**IMG-0156**  
 Comments  
**Discrete Sample CJ05-10082016-SED for**  
**Eurofinshtg + Mettg and Amec Foster Wheeler**  
**Durham for organic content and Grain Size (D422)**  
**Homogenized / 2/7/2017 @ 14:50.**  
**D2974@TBD**

Checked  
4/3/2017  
KC



amec  
foster  
wheeler



Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: *KC*  
 Sub: ~~AquaSurvey~~ WO: ~~Geophysical~~ Crew: *CR + LB*  
*Ot's Enterprise* Date: *10/8/2016* Time: *10:50* Vessel: *First Team*  
 Coordinates: Lat *44.44367* Long *-68.8538* Plan Volume: *1-2g*  
 Sampling Station: *CJ-SubSub-CJ-SSUB 3/CJ06 Page 1 of 2*  
 Weather: *Mid 60s* Winds: *Light* Waters: *M* Traffic: *None* Water Temp: *58*  
 Measured Water Depth (NAVD88): *28'* Total Number of Deployments: *6*  
 Correction to NAVD88 (+/- ft. from NAVD88): *-5.38'* Conditions: *-*  
 Mudline (Corrected Depth) @ NAVD88: *-30.88'*  
 Study Depth (NAVD88): *-31.11'*

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	0%	1 poly. on outside	<i>Discrete Sample CJ06-10082016-SED</i>
2	TR	TR silt	
3	20%	0"-1" silt Gley 1 3/10" TR light Brown at Surface 1"-3" stiff silt Gley 1 3/10"	<i>Composited to CJ01THRU02-STEVE-02/02/2017</i>
4	0%	Red not close	
5	30%	0"-3" Same, but Black streaking on lower level strata <i>continued on next page!</i>	

Number of containers: *2g* Grab Equipment: *PONAR 6B*  
 Type of container: bucket liner bag jar other Sampler Type: *Standard*  
 Capacity: *1.5 gal*

Live Organisms present:  Y  N  
 Oil-Like Present:  Y  N  
 Odor Present:  Y  N  
 Debris Present:  Y  N  
 Photo Numbers: *Tablet #10*  
*NA*  
*IMG-0161 to*  
*IMG-0165*  
 Comments: *Poly chertes*  
*2/7/2017: Homogenized and Discrete Sample*  
*CJ06-10082016-SED analyzed by Eurofins for*  
*total Hg and Methyl Hg; Amec Foster Wheeler-Durham*  
*for organic content and grain size.*  
*@ TBD (D2974) (D422)*

*Checked*  
*4/3/2017*  
*KC* 1 of 2





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <b>KL</b>
Sub: <b>AquaSurvey</b> <b>Otis Enterprise</b>	WO: <del>S - Geophysical</del> <b>See</b>	Crew: <b>CP + KB</b>
Date: <b>10/8/2016</b>	Time: <b>page 1</b>	Vessel: <b>FIRST TERM</b>
Coordinates: Lat <b>44.44367</b>	Long <b>-68.8538</b>	Plan Volume: <b>1-2g</b>
Sampling Station: <b>CJ-SS UB 3/C506</b>		<b>page 2 of 2</b>
Weather: <b>Mid 60's</b>	Winds: <b>light</b>	Waters: <b>~1'</b>
	Traffic: <b>None</b>	Water Temp: <b>58°</b>
Measured Water Depth (NAVD88): <b>28'</b>	Total Number of Deployments: <b>6</b>	
Correction to NAVD88 (+/- ft. from NAVD88): <b>-5.38'</b>	Conditions: <b>-</b>	
Mudline (Corrected Depth) @ NAVD88: <b>-30.88'</b>		
Study Depth (NAVD88): <b>-31.11'</b>		

### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
<b>6</b>	<b>100%</b>	<b>2 Poly, but square as tags</b> <b>last deployment</b>	<b>Discrete Sample</b> <b>CJ06-10082016-SED</b> <b>Composite Sample added to</b> <b>CJ01THRU20-STEVE-0203016</b>
<b>KL</b>			
<b>Insert partition segment of home</b>			

Started on previous page

Number of containers:	—	—	—	—	Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type <b>Powair</b> Capacity <b>standard</b>

Live Organisms present	<input checked="" type="radio"/> N	<b>Polychaetes</b> <b>Comments</b> <b>2/8/2017: Homogenized and Discrete Sample</b> <b>CJ06-10082016-SED analyzed by Eurofins for Total Hg</b> <b>and Methyl Hg; Amec Foster Wheeler - Durham for Organic</b> <b>content and grain size;</b> <b>(0432)</b>
Oil-Like Present	<input checked="" type="radio"/> Y	
Odor Present	<input checked="" type="radio"/> Y	
Debris Present	<input checked="" type="radio"/> Y	
Photo Numbers	<b>Tablet #10</b> <b>N/A</b> <b>IMG-0161 to</b> <b>IMG-0165</b>	

Checked 4/3/2017 KL 2 of 2





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: MKB  
 Sub: AquaSurvey OTS ENTERPRISES NO: 8 - Geophysical Crew: KCB, CTP  
 Date: 10/7/16 Time: 1240 Vessel: FISH team  
 Coordinates: Lat 49.41649483 N Long - 68.86256350 W Plan Volume: N/A  
 Sampling Station: C1 sub-1/C507  
 Weather: SW W Winds: 0 Waters: Calm Traffic: None Water Temp: 38F  
 Measured Water Depth (NAVD88): 81 Total Number of Deployments: 4  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38 Conditions: -  
 Mudline (Corrected Depth) @ NAVD88: -79.88'  
 Study Depth (NAVD88): -80.63'

All Recovered Quantities are in Estimated Gallons Percent

Deployment	Recovery	Description	Sample ID
1	10%	Dark grey silt, some fine sand	Discrete Sample C507-10072016-SED  Composite to C501THRU22-53516-02072017
		GLEY 2.5% 1 polychete	
2	50%	Dark grey silt, loose	
3	25%	Loose - DK GRAY SILT, TRACE FINE SAND	
4	100%	Dark grey silt	

Number of containers: 28  
 Type of container: bucket liner bag jar other  
 Grab Equipment: Sampler Type Pon Capacity 1.5 gal standard

Live Organisms present	Y	Comments 2/8/2017 @ 15:00 Homogenized and Discrete sample C507-10072016-SED analyzed by Eurofins for Total Hg and Methyl Hg; Amec Foster Wheeler - Durham for organic content and grain size; by Alpha for TOC @ TBD (020717) (0402)
Oil-Like Present	Y	
Odor Present	Y	
Debris Present	Y	
Photo Numbers	Tablet #10 IMG-0101 to IMG-0111	

Checked  
4/3/2017  
KC



CJ08



amec  
foster  
wheeler

### Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT GRAB LOG

page 11

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>Muham B</u>		
Sub: <u>AquaSurvey otis Enterprises</u>	WO: <u>3 - Geophysical</u>	Crew: <u>KCB, CTP</u>		
Date: <u>10/7/16</u>	Time: <u>11:22</u>	Vessel: <u>Fint Team</u>		
Coordinates: Lat <u>44.38673</u> N Long <u>-68.8567</u> W	Plan Volume: <u>2g</u>			
Sampling Station: <u>CJ-sub-16/CJ08</u>				
Weather: <u>Sunny</u>	Winds: <u>0</u>	Waters: <u>Calm</u>		
	Traffic: <u>0</u>	Water Temp:		
Measured Water Depth (NAVD88): <u>114</u>	Total Number of Deployments: <u>10</u>			
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Conditions: <u>-</u>			
Mudline (Corrected Depth) @ NAVD88: <u>-116.38'</u>				
Study Depth (NAVD88): <u>-116.91'</u>				
All Recovered Quantities are in Estimated Gallons Percent				
Deployment	Recovery	Description	Sample ID	
1	0%	No closure		
2	0%	No closure		
3	0%	No closure		
4	70%	<sup>top layer lighter green</sup> dark grey silt	<u>CJ08-10072016-SED</u>	
5	0%	Minute chips	<u>Composited to CJ01THRU22-SEVE-02092017</u>	
6	10%	dark grey silt		
7	0%	didn't close		
Number of containers: <u>2g</u>	<u>-</u>	<u>-</u>	<u>-</u>	Grab Equipment
Type of container: <u>bucket</u>	<u>liner bag</u>	<u>jar</u>	<u>other</u>	Sampler Type <u>POMAR</u>
				Capacity <u>1.5 gal. Standard</u>
Live Organisms present	Y <input checked="" type="checkbox"/>	Comments <u>Discrete sample CJ08-10072016-SED for Eurofins Hg+MeHg only - insufficient quantity for grain size + organic content.</u>		
Oil-Like Present	Y <input checked="" type="checkbox"/>			
Odor Present	Y <input checked="" type="checkbox"/>			
Debris Present	Y <input checked="" type="checkbox"/>			
Photo Numbers	<u>Tablet #10 IMG-0094 + IMG-0095</u>			

LAT  
LONG

KE

Discrete Sample  
CJ08-10072016-SED  
Composited to  
CJ01THRU22-SEVE-02092017

Checked  
4/3/2017  
KE







Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: C Platt  
 Sub: AquaSurvey OTIS FUTURE ~~NO. 3 - Geophysical~~ Crew: KB  
 Date: 7 Oct 2016 Time: 1755 Vessel: First Team  
 Coordinates: Lat 44.41636 Long -68.8453 Plan Volume: ~~10~~ 10  
 Sampling Station: CJ SUB 12 / C509  
 Weather: Sunny 60s Winds: light Waters: 1 ft Traffic: 0 Water Temp: 58 F  
 Measured Water Depth (NAVD88): 59 Total Number of Deployments: 2  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: within Oil Transfer Area  
 Mudline (Corrected Depth) @ NAVD88: -55.88'  
 Study Depth (NAVD88): -56.33'

LAT/LON

All Recovered Quantities are in Estimated Gallons Percent

Deployment	Recovery	Description	Sample ID
01	40%	loose brownish greenish gray silt	Discrete Sample C509-10072016-SED
02	60%	Brownish greenish gray silt	Composite Sample C502THRU02-STEVE 02092016

Insert partition segment of names

Number of containers: 2g Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type Posac Capacity large standard

Live Organisms present Y (N)  
 Oil-Like Present Y (N)  
 Odor Present Y (N)  
 Debris Present Y (N)  
 Photo Numbers Tablet #10 IMG-0151  
 Comments 2/8/2017 @ 19:20 Homogenized and Discrete Sample C509-10072016-SED analyzed by Gurofins for Total Hg (1631) and Methyl Hg; AMEC Foster Wheeler-Durham for organic content and grain size; Alpha for TOC Lloyd-Kahn @ TBD (020914) (0422)

Checked 11/13/2017 KC







# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: C. Platt  
 Sub: AquaSurvey, Otis Enterprises, Inc. - Geophysical Crew: KB+MB  
 Date: 7 Oct 2016 Time: 1725 Vessel: First TEAM  
 Coordinates: Lat 44.43008 Long -68.8243 Plan Volume: —  
 Sampling Station: CJ-SUB-13/CJ11  
 Weather: Sunny 60 Winds: light Waters: 1" chop Traffic: 0 Water Temp: 58 F  
 Measured Water Depth (NAVD88): 67 Total Number of Deployments: 5  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: -63.38'  
 Study Depth (NAVD88): -63.83'

LAT/LONG

All Recovered Quantities are in Estimated Gallons Percent

Deployment	Recovery	Description	Sample ID
01	TRACE	Undistinguishable silts	Discrete Sample CJ11-10072016-SSD  Composited to CJ01THRU22-SSVE-02092017
02	50%	0-1" loose brownish-greenish gray silt	
		1-5" stiff brownish-greenish gray silt	
03	0%	—	
04	20%	Same as #2, 0-1"	
05	60%	Same as #2 with four intact 1/2 Scallop shells	

Number of containers: 28 — — — Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type Ponar  
 Capacity Large Standard

Live Organisms present Y (N)  
 Oil-Like Present Y (N)  
 Odor Present Y (N)  
 Debris Present Y (N)  
 Photo Numbers  
 Tablet #10  
 IMG\_0149

Comments  
 2/7/2017: Homogenized and Discrete Sample CJ11-10072016-SSD analyzed by Eurofins for Total Hg (65%) and Methyl Hg; Amec Foster Wheeler - Durham for 020917 organic content and grain size (0400)  
 1/20: collect 5g sea water from ship wash pump enroute to CJ sub-13. Intake located fore of exhaust

Checked 4/3/2017 KC



MB sitting  
doing LAT/LONG  
on Tablet.



Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: C. Platt		
Sub: AquaSurvey	OTIS ENTERPRISES Geophysical	Crew: KB + MB		
Date: 7 Oct 2016	Time: 1700	Vessel: FIRST TEAM		
Coordinates: Lat 44.44083	Long -68.8128	Plan Volume: <del>100</del>		
Sampling Station: CJ-SUB-8/CJ12				
Weather: Sunny 60s	Winds: <del>0</del>	Waters: light chop		
	Traffic: 0	Water Temp: 58F		
Measured Water Depth (NAVD88): 62	Total Number of Deployments: 3			
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Conditions: -			
Mudline (Corrected Depth) @ NAVD88: -58.38'				
Study Depth (NAVD88): -59.13'				
All Recovered Quantities are in Estimated Gallons Percent				
Deployment	Recovery	Description	Sample ID	
01	40%	0-0.5" Flat Cobble	Discrete Sample CJ12-10072016-SED Composited to CJ01THRU22-SEB-07092017	
		0.5-5" Brownish greenish gray silt with fine to medium sands		
02	Trace	Coarse Sand		
03	100%	0-1" loose Brownish Greenish Gray Silt		
		1"-3" stiff Dark Gray Silt with trace cobble		
Number of containers:	28	-	-	Grab Equipment
Type of container:	bucket	liner bag	jar	other
				Sampler Type Ponar
				Capacity Large Standard
Live Organisms present	Y <input checked="" type="radio"/> N	Comments 2/8/2017 @ 15:30 Homogenized and Discrete Sample CJ12-10072016-SED analyzed by Eurofins for Total Hg and Methyl Hg; Amec Foster Wheeler - Durham for organic content and grain size; Alpha for TOC UOyd-Kahm.		
Oil-Like Present	Y <input checked="" type="radio"/> N			
Odor Present	Y <input checked="" type="radio"/> N			
Debris Present	Y <input checked="" type="radio"/> N			
Photo Numbers	Tablet #10 IMG-0145			

LAT  
LONG

Checked  
4/3/2017  
KE





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: C. Platt
Sub: AquaSurvey - OTIS ENTERPRISES NO. 8 Geophysical		Crew: KB
Date: 7 OCT 2016	Time: 1610	Vessel: FIRST TEAM
Coordinates: Lat 44.45547	Long -68.7876	Plan Volume: 2g
Sampling Station: CT-SSUB-4 / CJ13		
Weather: Sunny 70s	Winds: 0	Waters: 0
	Traffic: 0	Water Temp: 58F
Measured Water Depth (NAVD88): 17	Total Number of Deployments: 2	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38	Conditions: <del>Case</del> Mid Cove, soft bottom	
Mudline (Corrected Depth) @ NAVD88: -12.38		
Study Depth (NAVD88): -13.13		

LAT  
LONG

All Recovered Quantities are in Estimated Gallons - Percent

Deployment	Recovery	Description	Sample ID
01	20%	loose brownish greenish gray silt 0-3" 3"-5" stiff brownish, greenish gray silt w/ oxidized mottles	
02	100%	0-1 Same as #1, 0-3" 1-4 Same as #1, 3-5" 4-7 Same as #1, 3-5" w/ trace gravel 6" - pine needles, oak leaves, stems	

Discrete Sample  
CJ13-10072016-SED  
Composite Sample  
added to  
CJ13-10072016-SED  
CJ13-10072016-SED  
CJ13-10072016-SED  
Insert  
portion  
segment of  
name

Number of containers:	2f	-	-	-	Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type Ponar Capacity large Standard

Live Organisms present	Y (N)	Comments sulfur-like 2/4/2017 @ 10:00: Homogenized and Discrete Sample CJ13-10072016-SED analyzed by Gurotins. For Total Hg and Methyl Hg; Amec Foster Wheeler-Durham for organic content and grain size; Alpha for TOC Cloyd-Kahn
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	Y (N)	
Photo Numbers	Tablet #10 IMG-0139 to IMG-0142	

Checked  
4/13/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: C. Platt
Sub: AquaSurvey-CTIS ENT.	WO: <del>Geophysical</del>	Crew: KB
Date: 7 Oct 2016	Time: 1555	Vessel: FIRST TEAM
Coordinates: Lat 44.45066283	Long - 68.78507700	Plan Volume: 2g
Sampling Station: CJ-INT-1/C514		
Weather: Sunny 70s	Winds: 0	Waters: 0
Traffic: 0	Water Temp: 58F	
Measured Water Depth (NAVD88): 9	Total Number of Deployments: 4	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Conditions: Intertidal, hardpack sands.	
Mudline (Corrected Depth) @ NAVD88: -4.38'		
Study Depth (NAVD88): -4.91'		

All Recovered Quantities are in Estimated Gallons Percent

Deployment	Recovery	Description	Sample ID
01	2%	White + gray coarse sand	Discrete Sample (ish) C5141516-10072016-SED Composite to CJ01THRU22-SIEVE-02092017
02	70%	0-0.5" Coarse sand 2.5YR 3/2 0.5-3" medium sand 3-5" silty sand	
03	30%	white + gray Coarse sand with gravel	
04	5%	white + gray coarse sand with <del>the</del> GRAVEL in JAW	

Number of containers: 2g	—	—	—	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type: Ponar Capacity: large Standand

Live Organisms present: <input checked="" type="checkbox"/> N	Polychaetes Sulfur-like 2/9/2017 @ 10:50: Combined with CJ-INT-2 and CJ-INT-3 due to low recovery and similar lithology. Homogenized and Discrete Sample C5141516-10072016-SED (averaged to 15:30) analyzed by Eurofins for Total Hg and Methyl Hg; Amec Foster Wheeler-Durham for Organic Content and grain size; Alpha for TOC Lloyd-Kahm
Oil-Like Present: <input checked="" type="checkbox"/> N	
Odor Present: <input checked="" type="checkbox"/> N	
Debris Present: <input checked="" type="checkbox"/> N	
Photo Numbers: Tablet #10 IMG-0125 + IMG-0138	Comments

Checked by  
4/3/2017  
KC



SSUB 4  
next



amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation  
SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: C Platt  
 Sub: AquaSurvey OTIS ENTERPRISES WO: 8 - Geophysical Crew: KB + MB  
 Date: 7 Oct 2016 Time: 1510 Vessel: FIRST TEAM  
 Coordinates: Lat 44.43245983 Long -68.80739567 Plan Volume: 2g  
 Sampling Station: CJ-INT-2 / CJ15  
 Weather: Sunny 70s Winds: Light Waters: Light Traffic: 0 Water Temp: 58F  
 Measured Water Depth (NAVD88): 8 Total Number of Deployments:  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: shallow water alarm at 5.6 ft. Mudline contours w/ boulders  
 Mudline (Corrected Depth) @ NAVD88: -3.28' High tide @ 9.7 ft, collected intertidal.  
 Study Depth (NAVD88): -3.32'

All Recovered Quantities are in Estimated Gallons - Percent

Deployment	Recovery	Description	Sample ID
01	5%	white + gray coarse sand with shell fragments & gravel	
02	Trace	Coarse sand	
03	1%	Same as #1	
04	15%	Same as #1	

Discrete Sample (ish)  
CJ141516-10072016-SED  
Composited to  
CJ01THR122-STEVE-02092017

Number of containers: 2g — — — Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type Panar Capacity Standard

Live Organisms present Y (N)  
 Oil-Like Present Y (N)  
 Odor Present Y (N)  
 Debris Present Y (N)  
 Photo Numbers  
 Tablet #10  
 IMG-0126 +  
 IMG-0128

Comments  
 Low recovery, hardpack sands, no wood chips.  
 2/19/2017 @ 10:50: Combined with CJ-INT-1 and CJ-INT-3  
 due to low recovery and similar lithology. Homogenized  
 and Discrete Sample CJ141516-10072016-SED  
 (averaged to 15:30) analyzed by G. Griffin for Total Hg (AS)  
 and Methyl Hg (AS) Amec Foster Wheeler-Durham for  
 organic content and grain size; Alpha for Toc  
 Lloyd-Kahn

Checked  
4/3/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation  
**SEDIMENT GRAB LOG**

Owner: USDC, District of Maine Project No. 3616166052 Logger: C Platt  
 Sub: AquaSurvey OTIS ENTERPRISES ~~8 - Geophysical~~ Crew: KB + MB  
 Date: 7 Oct 2016 Time: 1525 Vessel: FIRST TEAM  
 Coordinates: Lat 44.43494600 Long -68.80237483 Plan Volume: 2g  
 Sampling Station: CJ-INT-3 / CS16  
 Weather: Sunny Winds: 0 Waters: light Traffic: 0 Water Temp: 58F  
 Measured Water Depth (NAVD88): 9 Total Number of Deployments: 4  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: Intertidal, hard pack sands with boulders  
 Mudline (Corrected Depth) @ NAVD88: -4.23'  
 Study Depth (NAVD88): -4.38'

All Recovered Quantities are in Estimated Gallons — Percent

Deployment	Recovery	Description	Sample ID
01	0%		
02	15%	White + Gray Coarse Sand with yellowish tan gravel	
03	20%	Same as #2	
04	20%	Same as #2	

Discrete Sample  
 CJ141516-1007<sup>2016</sup> SED

Composited to  
 CJ01THRU02-SIEVE-0200-2017

Number of containers: 2g — — — Grab Equipment  
 Sampler Type Ponar  
 Type of container: bucket liner bag jar other Capacity Large Standard

Live Organisms present Y  N  
 Oil-Like Present Y  N  
 Odor Present Y  N  
 Debris Present Y  N  
 Photo Numbers  
 Table # 10  
 IMG-0170  
 + IMG-0174

Comments  
 Low recovery, no wood chips apparent.  
 2/9/2017 @ 10:50: Combined with CJ-INT-1 and CJ-INT-2  
 and Discrete Sample CJ141516-1007<sup>2016</sup> SED (1630)  
 (averaged to 15:30) analyzed by Gerrosins for Total Hg  
 and Methyl Hg; Amec Foster Wheeler-Durham for  
 organic content and grain size; Alpha for TOC Usgy

Checked  
 4/3/2017  
 KC



amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: K. BAVOR  
 Sub: AquaSurvey 015 CENTER KIS WO: 2 - Geophysical Crew: C. PLATT/K. CASEY  
 Date: 10-8-16 Time: 12:45 Vessel: FIRST TEAM  
 Coordinates: Lat 44.45209033°N Long -68.83978633°W Plan Volume: 2 GAL  
 Sampling Station: CJ-SSUB-2 (ATTEMPT 1) / CJ17  
 Weather: Mostly Clear Winds: 15-15 KTS SOUTHWESTLY Waters: WHITE CAPS 2-3' SURGE Traffic: Power Boat Water Temp: 50.55° F  
 Measured Water Depth (NAVD88): 35' Total Number of Deployments: 5  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: -30.55'  
 Study Depth (NAVD88): -30.63'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	10%	Brownish/Greenish-SILT. LOOSE	Discrete Sample CJ17-10082016-SED  Composited to CJ01THRU22 - SIEVE 200µm
2	TRACE	BLACK PARTICLES	
3	0%		
4	TRACE	SUSPECT WASHED OUT - COLLECT 170 FINE BLACK PARTICLES	
5	0%	ROUGH SEA - WILL RETURN TO STATION UNDER LATER SEA CONDITION	

Number of containers: 1-2-gal Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type PEASIE PUMPER Capacity 2 gal 1.5 gal  
 Live Organisms present Y  N  
 Oil-Like Present Y  N  
 Odor Present Y  N  
 Debris Present Y  N  
 Photo Numbers N/A  
 Comments: Discrete Sample CJ17-10082016-SED analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1831); by AmecFW-Durham for D422 Grain size and D2974@TBD

Also, composited into sample CJ01THRU22

Checked  
4/3/2017  
KC





amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: KE, CAW  
 Sub: AquaSurvey - OWS CA WO: ~~S - Geophysical~~ Crew: C. PLATT / K. CASBY  
 Date: 10/8/16 Time: 1400 Vessel: FIRST TEAM  
 Coordinates: Lat 44 46 20.750 N Long 68 03 40.333 W Plan Volume: 2 GAU  
 Sampling Station: CJ SUB 1 / CJ 18  
 Weather: OVERCAST SUN Winds: 12-15 Kts S Waters: 2-4 SWELL Traffic: NONE Water Temp: 50.55 °F  
 Measured Water Depth (NAVD88): 40' Total Number of Deployments: 10  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: -46.38'  
 Study Depth (NAVD88): -46.76'

All Recovered Quantities are in Estimated Gallons 76 PDMR VOLUME

Deployment	Recovery	Description	Sample ID
<u>1,2,3</u>	<u>TRACE</u>	<u>SILTY CLUMPS</u>	
<u>4</u>	<u>5%</u>	<u>DK BROWNISH GRAY, SLIGHT GREENISH SILT, COHESIVE, NOT PLASTIC SOFT BLACK STRAGGLED &amp; FINE, BLACK PARTICLES.</u>	
<u>5</u>	<u>5%</u>	<u>SAME AS #4, MEDIUM SAND &amp; TRACE FINE SAND. BLACK PARTICULAT</u>	
<u>6,7</u>	<u>0%</u>	<u>SHELL FRAGMENTS, TWIGS, COLLECTED "WOOD CHIPS"</u>	
<u>8</u>	<u>50%</u>	<u>SAME AS #4</u>	
<u>9</u>	<u>50%</u>	<u>SHELL FRAGMENTS, TRACE FINE SAND. SILT, DK BROWN-GREY BLACK STRAGGLED, DARK CHIP PARTICULATE SOFT, NOT COHESIVE</u>	
<u>10</u>	<u>50%</u>	<u>SAME AS #4</u>	

Discrete Sample  
KE CJ18-10082016 SED  
Composited to  
CJ01THRU22 - SIEVE - 02092017

Number of containers: 25-1 Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type PDMR 16  
 Capacity 1.5 gal Standard

Live Organisms present Y (N)  
 Oil-Like Present Y (N)  
 Odor Present (N)  
 Debris Present (N)

Photo Numbers  
N/A

Comments  
2/6/2017: Homogenized and Discrete Sample  
RIGHT ODOR CJ18-10082016-SED analyzed by  
Eurofins for Total Hg (1631) and Methyl Hg  
(1630); by Amec Foster Wheeler - Durham for  
D422 Grain Size and D2974 OC @ TBD.  
RE NAMED FROM CJ-SUB-6 TO CJ-SSUB-1

Checked  
4/13/2017  
KE





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: C PLATT
Sub: <del>AquaSurvey</del> OTIS Enterprises	WO: <del>Geophysical</del>	Crew: KB + MB
Date: 7 Oct 2016	Time: 1355	Vessel: FIRST TEAM
Coordinates: Lat 44.42614583	Long -68.85432683	Plan Volume: 29
Sampling Station: CJ-SUB-10 / CJ19		
Weather: Sunny 70%	Winds: 0	Waters: 0
	Traffic: 0	Water Temp: 58F
Measured Water Depth (NAVD88): 89	Total Number of Deployments: 8	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Conditions: -	
Mudline (Corrected Depth) @ NAVD88: -85.63'		
Study Depth (NAVD88): -86.01'		

All Recovered Quantities are in Estimated Gallons - Percent

Deployment	Recovery	Description	Sample ID
01	50%	CLAY 1 3/2 brownish greenish gray silt w/ trace shell fragments	Discrete Sample CJ19-10072016-SED  Composited to CJ01THRU22-STEVE-02072017
02	40%	Same as #1	
03	0	No closure	
04	0	No closure	
05	1%	trace silt	
06	0	No closure	
07	30%	Same as #1	
08	5%	Same as #1 w/ single 3" long wood debris	

Number of containers: 29	—	—	—	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type Ponar
				Capacity 4g Standard

Live Organisms present	(N)	Comments 2/7/2017 @ 14:35 liquid decanted into cloth bag clamped into fish tank → oil filter bag 2/7/2017 @ 17:00 Discrete Sample CJ19-10072016-SED analyzed by Eurofins for total Hg and methyl Hg; by Amec Foster Wheeler - Durham for organic content and grain size. Also homogenized at that time.
Oil-Like Present	(N)	
Odor Present	(N)	
Debris Present	(Y)	
Photo Numbers	Tablet #10 IMG-0121 to IMG-0122	

Checked  
4/3/2017  
KE





**Penobscot River Mercury Study - Phase III Engineering Evaluation  
SEDIMENT GRAB LOG**

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>C. Platt</i>
Sub: <i>Aque Survey OTIS</i>	WO: <del>5 - Geophysical</del>	Crew: <i>KB + MB</i>
Date: <i>7 Oct 2016</i>	Time: <i>1315</i>	Vessel: <i>FIRST TEAM</i>
Coordinates: Lat <i>44.42662</i>	Long <i>-68.8644</i>	Plan Volume: <i>2g</i>
Sampling Station: <i>CJ-SUB-9 / CJ20</i>		
Weather: <i>clear 70</i>	Winds: <i>0</i>	Waters: <i>0 CALM</i>
Measured Water Depth (NAVD88): <i>50</i>	Total Number of Deployments: <i>3</i>	
Correction to NAVD88 (+/- fl. from NAVD88): <i>-5.38'</i>	Conditions: <i>-</i>	
Mudline (Corrected Depth) @ NAVD88: <i>-48.13'</i>		
Study Depth (NAVD88): <i>-48.73'</i>		

LAT  
LONG

All Recovered Quantities are in Estimated Gallons Percent

Deployment	Recovery	Description	Sample ID
<i>01</i>	<i>10%</i>	<i>DK GRAY SILT - TRACES FINES LOOSE 7.5 YR 3/1</i>	<i>Discrete Sample CJ20-10072016-SED</i>
<i>02</i>	<i>80%</i>	<i>DK GRAY SILT - GLOBULAR - LOOSE TO STIFF</i>	
<i>03</i>	<i>80%</i>	<i>Same as #2 w/ shells</i>	
			<i>Composited to CJ20TRV22-STEVE-08072017</i>

*insert  
partition segment  
of name*

Number of containers: <i>2g</i>	<i>-</i>	<i>-</i>	<i>-</i>	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type <i>Ponar</i>
				Capacity <i>large Standard</i>

Live Organisms present Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Oil-Like Present Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Odor Present Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Debris Present Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	<b>Comments</b>  <i>1 top screen on ponar</i>  <i>Full capture on screened half</i>
Photo Numbers <i>Tablet #10</i> <i>IMG-0113 +</i> <i>IMG-0117</i>	

*KL 2/8/2017 @ 18:45 Homogenized and Discrete Sample CJ20-10072016-SED analyzed by Eurofins for Total Hg and Methyl Hg; Amec Foster Wheeler-Dorham for organic content and grain size; Alpha for TOC Lloyd-Kahm*

*Checked  
4/3/2017  
KL*





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: Miguel B.  
 Sub: AquaSurvey OTIS Enterprises WO: 2 - Geophysical Crew: KCB/CTP  
 Date: 10/7/16 Time: 11:00 Vessel: FIRST TEAM  
 Coordinates: Lat 44.41104 N Long -68.8839 W Plan Volume: N/A  
 Sampling Station: CJ-sub-15 / C521  
 Weather: SUNNY 70s Winds: 0 Waters: calm Traffic: none Water Temp: 58°F  
 Measured Water Depth (NAVD88): 65.8 Total Number of Deployments: 4  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: -  
 Mudline (Corrected Depth) @ NAVD88: -68.18'  
 Study Depth (NAVD88): -68.63'

LAT  
LONG

### All Recovered Quantities are in Estimated Gallons Percent

Deployment	Recovery	Description	Sample ID
1	0%	PONAR didn't close	
2	60%	dark grey silt trace fines	
3	23%	Same as #2	
4	0%	No retrieval	

Discrete Sample #12  
 C521-10072016-SED  
 Composite Sample added to  
 C502 TRUW22 STEVE 02/02/2017  
 Insert partition segment of name

Number of containers: 2 Grab Equipment: PONAR  
 Type of container: bucket liner bag jar other Sampler Type: PONAR  
 Capacity: 1.5 GAL Standard

Live Organisms present Y  
 Oil-Like Present Y  
 Odor Present Y  
 Debris Present Y  
 Photo Numbers  
Tablet #10  
IMG-8092

Comments  
 2/9/2017 @ 09:30: Homogenized and Discrete Sample  
 C521-10072016-SED analyzed by Eurofins for TOC Hg  
 and Methyl Hg; Amec Foster Wheeler - Durham for  
 organic content size; Alpha for TOC Light Katm.

Checked  
 4/3/2017  
 KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: C. Platt  
 Sub: AquaSurvey OTIS ENT. WO: ~~3-Geophysical~~ Crew: KB  
 Date: 7 OCT 2016 Time: 1645 Vessel: FIRST TEAM  
 Coordinates: Lat 44.44872467 Long -68.80753317 Plan Volume: 2L  
 Sampling Station: CS SUB-7 / CS22  
 Weather: Sunny 60 Winds: light Waters: light chop Traffic: 0 Water Temp: 58F  
 Measured Water Depth [NAVD88]: 64 Total Number of Deployments: 4  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: -  
 Mudline (Corrected Depth) @ NAVD88: -59.88'  
 Study Depth (NAVD88): -60.26'

All Recovered Quantities are in Estimated Gallons Percent

Deployment	Recovery	Description	Sample ID
01	2%	Brownish-greenish gray silt with some fine sands and trace shell fragments.	
02	50%	Brownish-greenish gray silt w/ some medium sands & gravel.	
03	30%	Brownish-greenish gray silt w/ coarse sand and shell fragments	
04	TRACE	Coarse sands gray + black	

Discrete sample CS22-10072016-SED  
 Composite sample added to CS01 TRU22-50072016-SED  
 Insert partition segment of tube

Number of containers: 2g — — — Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type Ponar Capacity Large (Standard)

Live Organisms present Y  
 Oil-Like Present Y  
 Odor Present Y  
 Debris Present Y  
 Photo Numbers  
 Tablet #10  
 IMG-0144

Comments  
 2/9/2016 @ 10:05: Homogenized and Discrete Sample CS22-10072016-SED analyzed by GuroPTS for Total Hg and Methyl Hg; Amec Foster Wheeler-Durham for Organic content and grain size; Alpha for Toc Lloyd-Kahn

Checked  
 3/31/2017  
 KC









Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: MB  
 Sub: AquaSurvey WO: ~~3 - Geophysical~~ Crew: KCCW, MM  
 Date: 10/19/16 Time: 0900 Vessel: Panicle  
 Coordinates: Lat 44.62366967 Long -68.84400150 Plan Volume: ~~10~~ -  
 Sampling Station: FF300-sub / FF53  
 Weather: Sunny Winds: 0-5 knots Waters: calm Traffic: None Water Temp: -  
 Measured Water Depth [NAVD88]: 5' Total Number of Deployments: 3  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Conditions: -  
 Mudline (Corrected Depth) @ NAVD88: -8.89'  
 Study Depth (NAVD88): -9.42'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	70%	silt. scat FN sand, Non-w/ln Non-plas. Very soft con. Strong sulfur-like odor.	10YR 3/1. Scat
2	0%		
3	1%	Silt	
4			

partic  
silt  
WC.  
TR  
sands  
size W

Number of containers: 1-5gal  
 Type of container: bucket liner bag jar other  
 Grab Equipment: Sampler Type standard PONAR Capacity  
 Live Organisms present Y N  
 Oil-Like Present X N  
 Odor Present Y N moderate strong  
 Debris Present Y N WC  
 Photo Numbers: IMG-8944  
 Comments: Composited into FF5354 Sample

Checked  
3/30/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: MB  
 Sub: AquaSurvey WO: 3 Geophysical Date: 10/19/16 Time: 09:50 Crew: KC CW MM  
 Coordinates: Lat 44.61782200 Long -68.83844923 Vessel: Pamola  
 Sampling Station: FF301-SUB/FF54  
 Weather: Sunny Winds: 0-5 knots Waters: calm Traffic: None Water Temp: —  
 Measured Water Depth [NAVD88]: 1.5' Total Number of Deployments: 4  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: -2.39'  
 Study Depth (NAVD88): -3.07'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	80%	silt. scat FN sands. coh. non-plas.	
2	80%	soft coh. 10YR 2/2. Moderate sulfur like odor scat. sawdust size WC	
3	0%	NO RECOVERY	
4	90%	<del>fine sand</del> silt. TR FN sand. coh; non-plas, very soft coh. 10YR 2/1. slight sulfur-like odor. TR sawdust fine WC; scat. sawdust size WC.	

→ apply to 1, 2  
occ. shred mul  
occ. particle size 1

Number of containers: 2-5 gal — — — Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type Standard PonTR  
 Capacity

Live Organisms present Y (N)  
 Oil-Like Present Y (N)  
 Odor Present (Y) N  
 Debris Present (Y) N

Photo Numbers  
 IMG-8949  
 +  
 IMG-8950

Comments  
 Discrete sample (FF54-10192016-SED) analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630); by Alpha for TOC Lloyd-Katman by AmecFW-Durham for D422 Grain Size and D2974 OC@TBD

Composited into sample FF5354

Checked 3/30/2017 KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Ketmac</i>
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: <i>CHRIS W. MATHEW</i>
Date: <i>10/20/16</i>	Time: <i>1017</i>	Vessel: <i>Pamala</i>
Coordinates: Lat <i>44.58505</i>	Long <i>-68.8595</i>	Plan Volume: <i>-</i>
Sampling Station: <i>MM400B-INT / MM50</i>	Deploy No. <i>-</i>	Sub-tidal Location? Y <input checked="" type="checkbox"/> N
Weather: <i>Sol's clear</i>	Winds: <i>0-5 km/h</i>	Waters: <i>Calm</i>
	Traffic: <i>N/A</i>	Water Temp: <i>51°</i>
Measured Water Depth [MWD]: <i>-</i>	Core Penetration Length (ft.): <i>1.2'</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>1.2'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>-2.39'</i>	Sample Length Retained (ft.): <i>1.2'</i>	
Study Depth (NAVD88): <i>-3.59'</i>	Acceptable Core (80% recovery): <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Required Penetration Length: <i>1'</i>	Core Volume Retained (gal.): <i>0.396</i>	
<b>All Length Measurements are in Decimal Feet</b>		
Sample Interval (ft.)	Sample ID #	Description
Top <i>0</i>		<i>JTH, TRC case Jerd. Coh, Non Plat, soft con, 10YR 4/1, shell fragments</i>
<i>0.3</i>		<i>same, med stiff</i>
		<i>Homogenized 2/5/2016 @ 12:35</i>
		<i>Discrete Sample MM50-10202016-SED</i>
		<i>+ Compositied into Sample MM50 THRU 56</i>
Bottom <i>1.2</i>		
Number of containers: <i>1 gal</i>	<i>1 gal</i>	Core Volumes
Type of container: bucket	liner bag	Nominal core-barrel diameter
Liner Type: Soft <input checked="" type="checkbox"/> Hard	Vibracorer: P3 P5 VT6 Other	4.0" .50gal/ft
	Push Corer	Slambar
		3.5" .33gal/ft
Live Organisms present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Comments	
Oil-Like Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		
Odor Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		
Debris Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		
Photo Numbers	<i>JTH/MSK - shell fragments</i>	
<i>ATN/A</i>	<i>Discrete sample analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and Amec Fw-Durham for D402 Grain Size and D2974 OC @ TBD</i>	

*KE*

*Checked 3/29/2017 KE*





amec  
foster  
wheeler

## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: KARMA C.
Sub: <del>AquaSurvey</del>	WO: <del>3-Geophysical</del>	Crew: MATT M. CHESU.
Date: 10/20/16	Time: 1050	Vessel: PARNOLA
Coordinates: Lat 44.57465067	Long - 68.85486767	Plan Volume: -
Sampling Station: MM 401B-INT/MM51	Deploy No. -	Sub-tidal Location? Y (N)
Weather: 50% Cloudy	Winds: 0.5 Knots	Waters: Calm
Traffic: NA	Water Temp: 54.0	
Measured Water Depth (MWD): > 1'	Core Penetration Length (ft.): 1'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 1'	
Mudline (Corrected Depth) @ NAVD88: -1.89'	Sample Length Retained (ft.): 1'	
Study Depth (NAVD88): -2.89'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.33	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top	0	51175, Coh, Non PAS, Soft con
0.1		2.5 Y3/3, Trace Leaf & Twig litter
0.4		51175, Coh, low PAS, Soft con
		2.5 Y3/1, Trace Twig
Bottom	1'	

Number of containers: -	-	-	-	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <u>Hard</u>	Vibracorer: P3 P5 VT6 Other			4.0"	.50gal/ft
	<u>Push Corer</u>			3.5"	.33gal/ft

Live Organisms present	Y (N)	<p>Comments</p> <p>Homogenized 2/14/2017 KC</p> <p>-Twigs &amp; Leaf litter Discrete sample</p> <p>MM51-10202016-SEP</p> <p>Analyzed by Eurofins for Total Hg and Methyl Hg, by Alpha for TOC, and AmecFW-Durham for</p>
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	(Y) N	
Photo Numbers	<p>1051 TABLE #/2</p> <p>IMG-0064</p>	

0422 Grain Size and 0474 OC @ TBD

Also, composited into sample MM50 THRU 56

Checked  
3/29/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Kathia C.</i>
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: <i>Matt M. Arisw.</i>
Date: <i>10/20/16</i>	Time: <i>1:30</i>	Vessel: <i>Pamela</i>
Coordinates: Lat <i>44.57016450</i>	Long <i>-68.85350367</i>	Plan Volume: <i>—</i>
Sampling Station: <i>MM402B-TN1 / MM52</i>	Deploy No. <i>—</i>	Sub-tidal Location? <i>Y (N)</i>
Weather: <i>20's Cloudy</i>	Winds: <i>0-5 knots</i>	Waters: <i>Calm</i>
Traffic: <i>N/A</i>	Water Temp: <i>54°</i>	
Measured Water Depth (MWD): <i>—</i>	Core Penetration Length (ft.): <i>0.7'</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>0.7'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>0.86'</i>	Sample Length Retained (ft.): <i>0.7'</i>	
Study Depth (NAVD88): <i>0.16'</i>	Acceptable Core (80% recovery): <i>Y (N)</i>	
Required Penetration Length: <i>1'</i>	Core Volume Retained (gal.): <i>0.33</i>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0		<i>51145, coh, low plat, soft com</i>
		<i>10YR 3/2 silt &amp; Fibrous roots</i>
		<i>Roots increase</i>
		<i>sand</i>
Bottom .7		

Number of containers: <i>1 gal</i>	<i>1 gal</i>	<i>—</i>	<i>—</i>	Core Volumes	
Type of container: <i>bucket</i>	<i>liner bag</i>	<i>jar</i>	<i>other</i>	Nominal core-barrel diameter	EST. Volume
Liner Type: <i>Soft</i>	Vibracorer: <i>P3 P5 VT6</i>			4.0"	.50gal/ft
	<i>Rush Core</i>			3.5"	.33gal/ft

Live Organisms present <i>Y (N)</i>	<p>Comments</p> <p><i>Homogenized 2/15/2016 @ 15:20</i></p> <p><i>Slight silt like Discrete Sample</i></p> <p><i>Roots &amp; Twigs MM52-10202016-SED</i></p> <p><i>Discrete Sample analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and Amec FW-Durham for D422 Grain Size and D2974 OC @ TBD</i></p>
Oil-Like Present <i>Y (N)</i>	
Odor Present <i>Y (N)</i>	
Debris Present <i>Y (N)</i>	
Photo Numbers	<i>N/A</i>

Also, composited into sample MM50THRU56

Checked 3/29/2017 KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>KRM/C.</u>
Sub: <u>AquaSurvey</u>	WO: <u>8 - Geophysical</u>	Crew: <u>MST/M. CHIN/W.</u>
Date: <u>12/20/16</u>	Time: <u>1233</u>	Vessel: <u>Pomona</u>
Coordinates: Lat <u>44.56184983</u>	Long <u>-68.85770133</u>	Plan Volume: <u>-</u>
Sampling Station: <u>MM43B-INT/MM53</u>	Deploy No. <u>-</u>	Sub-tidal Location? Y <input checked="" type="radio"/> N
Weather: <u>Cloudy 57°</u>	Winds: <u>0-5 kts</u>	Waters: <u>Calm</u>
	Traffic: <u>N/A</u>	Water Temp: <u>57°</u>
Measured Water Depth (MWD): <u>-</u>	Core Penetration Length (ft.): <u>1.4'</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.89'</u>	Recovered Core Length (ft.): <u>1.4'</u>	
Mudline (Corrected Depth) @ NAVD88: <u>5.11'</u>	Sample Length Retained (ft.): <u>1.4'</u>	
Study Depth (NAVD88): <u>3.71'</u>	Acceptable Core (80% recovery): Y <input checked="" type="radio"/> N	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.462</u>	
All Length Measurements are in Decimal Feet		
Sample Interval (ft.)	Sample Id #	Description
Top		silt, coh, non-plas, soft to med stiff, 10% 1/2
		10% 3/1, scat twigs, plant debris
		Homogenized 2/15/2017 @ 12:00
		Discrete sample
		MM53-10202016-SED
		+ Composited into sample MM50THRU56
Bottom		
Number of containers: <u>-</u>		Core Volumes
Type of container: bucket <input checked="" type="checkbox"/> liner bag <input type="checkbox"/> jar <input type="checkbox"/> other <input type="checkbox"/>		Nominal core-barrel diameter
Liner Type: Soft <input checked="" type="checkbox"/> Hard <input type="checkbox"/>	Vibracorer: P3 P5 VT6 Other	EST. Volume
	Push Corer <input checked="" type="checkbox"/> Slambar	4.0" .50gal/ft
		3.5" .33gal/ft
Live Organisms present Y <input checked="" type="radio"/> N	Comments Discrete sample analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and AmecFW-Burham for D422 Grain Size and D2974 OC@TBD	
Oil-Like Present Y <input checked="" type="radio"/> N		
Odor Present Y <input checked="" type="radio"/> N		
Debris Present Y <input checked="" type="radio"/> N		
Photo Numbers <u>Tablet #12</u> <u>IMG-0067</u>		

0'

1.4'

Checked  
3/29/2017  
KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Kayla C.</i>
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: <i>MATT M. ARROW</i>
Date: <i>10/20/16</i>	Time: <i>1310</i>	Vessel: <i>Panda</i>
Coordinates: Lat <i>44.56360300</i>	Long <i>-68.85129733</i>	Plan Volume: <i>---</i>
Sampling Station: <i>MM 404B - INT / MM54</i>	Deploy No. <i>---</i>	Sub-tidal Location? Y <input checked="" type="checkbox"/> N
Weather: <i>ScW Cloudy</i>	Winds: <i>0-5Kt</i>	Waters: <i>calm</i>
Traffic: <i>N/A</i>	Water Temp: <i>51</i>	
Measured Water Depth (MWD): <i>---</i>	Core Penetration Length (ft.): <i>0.8'</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>0.8'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>6.36'</i>	Sample Length Retained (ft.): <i>0.8'</i>	
Study Depth (NAVD88): <i>5.56'</i>	Acceptable Core (80% recovery): Y <input checked="" type="checkbox"/> N	
Required Penetration Length: <i>1'</i>	Core Volume Retained (gal.): <i>0.284</i>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top	0	
		<i>Clay, silt, sand, shells, 1/2 soft, 1/2 R/S</i>
	<i>0.3</i>	<i>same, medium silt</i>
Bottom	<i>0.8</i>	

Number of containers:	<i>---</i>	<i>---</i>	<i>---</i>	<i>---</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <i>Soft</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.0"	.50gal/ft
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.5"	.33gal/ft

Live Organisms present	Y <input checked="" type="checkbox"/> N	<p>Comments</p> <p><i>Homogenized 2/15/2017 @ 16:45</i></p> <p><i>Discrete sample</i></p> <p><i>MM 54 - 10202016 - SED</i></p>
Oil-Like Present	Y <input type="checkbox"/> N	
Odor Present	Y <input type="checkbox"/> N	
Debris Present	Y <input type="checkbox"/> N	
Photo Numbers	<i>N/A</i>	

*Analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and AmecFW-Durham for D42 Grain Size and D2974 OC @ TBD*

*Also, composited into Sample MM50THRUS6*

*Checked 3/29/2017*





amec  
foster  
wheeler

### Penobscot River Mercury Study - Phase III Engineering Evaluation

#### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>KATHA C.</i>
Sub: <del>AquaSurvey</del>	WO: <del>8 - Geophysical</del>	Crew: <i>MATT M. CHRISTY W.</i>
Date: <i>10/20/16</i>	Time: <i>1335</i>	Vessel: <i>PALPIA</i>
Coordinates: Lat <i>44.55216933</i>	Long <i>-68.857147283</i>	Plan Volume: <i>---</i>
Sampling Station: <i>MM405B-INT/MM55</i>	Deploy No. <i>---</i>	Sub-tidal Location? Y (N)
Weather: <i>50% CLOUD</i>	Winds: <i>0-5 KNOTS</i>	Waters: <i>Calm</i>
Traffic: <i>N/A</i>	Water Temp: <i>54</i>	
Measured Water Depth (MWD): <i>6'</i>	Core Penetration Length (ft.): <i>0.7'</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>0.7'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>0.61'</i>	Sample Length Retained (ft.): <i>0.7'</i>	
Study Depth (NAVD88): <i>-0.09'</i>	Acceptable Core (80% recovery): Y (N)	
Required Penetration Length: <i>1'</i>	Core Volume Retained (gal.): <i>0.231</i>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top	0	<i>5115, non cck, non plat, VERY SOFT, 10YR 4/1, JCAT PLANT MATTER (TWIGS &amp; ROOTS) SAME, ABNT ROOTS.</i>
	.3	
Bottom	0.7	

*Discrete Sample  
MM5510202016 - SED  
+  
Composited into Sample MM53 THRU 56*

*Homogenized  
2/15/2017  
10:00  
KC*

Number of containers: <i>1 gal</i>	<del>toat</del>	<del>---</del>	<del>---</del>	Core Volumes	
Type of container: bucket	<del>liner bag</del>	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <del>Hard</del>	Vibracorer: P3 P5 VT6 Other	Slambar		4.0"	.50gal/ft
	<del>PASS-Corer</del>			3.5"	.33gal/ft

Live Organisms present	Y (N)	Comments <i>SUBSTRATE WITH TWIGS &amp; ROOTS Analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and Amec FW-Durham for D482 Grain Size, and D4974 OC @ TBD</i>
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	Y (N)	
Photo Numbers	<i>N/A</i>	

*Checked  
3/29/2017  
KC*





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: KARNHA, C
Sub: <del>AquaSurvey</del>	WO: <del>3-Geophysical</del> <i>Cont</i>	Crew: <i>MARTIN, BROWN</i>
Date: <i>10/20/16</i>	Time: <i>1402</i>	Vessel: <i>PATOLA</i>
Coordinates: Lat <i>44.55643750</i>	Long <i>-68.95799467</i>	Plan Volume: <i>-</i>
Sampling Station: <i>MM-406B-int / MM56</i>	Deploy No. <i>-</i>	Sub-tidal Location? Y <i>(N)</i>
Weather: <i>50% Cloudy</i>	Winds: <i>0-5 kts</i>	Waters: <i>CalM</i>
	Traffic: <i>N/A</i>	Water Temp: <i>54°F</i>
Measured Water Depth (MWD): <i>-</i>	Core Penetration Length (ft.): <i>0.6'</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>0.6'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>8.11'</i>	Sample Length Retained (ft.): <i>0.6'</i>	
Study Depth (NAVD88): <i>7.51'</i>	Acceptable Core (80% recovery): Y <i>(N)</i>	
Required Penetration Length: <i>2'</i>	Core Volume Retained (gal.): <i>0.198</i>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top		<i>SHR, Can, not flat, med. dense</i>
		<i>10YR3/1 ABNT Roots, root</i>
		<i>Leaves, stragg, juliflor like</i>
		<i>etc.</i>
Bottom		

Number of containers:	<i>1 gal</i>	<i>1 gal</i>	<i>-</i>	<i>-</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <i>(Hard)</i>					4.0"	.50gal/ft
					3.5"	.33gal/ft

Live Organisms present	Y <i>(N)</i>	<p>Comments</p> <p><i>Homogenized 2/15/2018 @ 16:00</i></p> <p><i>- stragg, spherime</i></p> <p><i>Leaves &amp; Roots</i></p> <p><i>Discrete Sample</i></p> <p><i>MM56-10202016-SED</i></p> <p><i>Analyzed by Eurofins for Total Hg and Metals;</i></p> <p><i>by Alpha for TOC; and AmerFW-Durham</i></p> <p><i>for D422 Grain Size and D2974 OC@TBD</i></p>
Oil-Like Present	Y <i>(N)</i>	
Odor Present	Y <i>(N)</i>	
Debris Present	Y <i>(N)</i>	
Photo Numbers	<i>N/A</i>	

Also, composited into sample MM50 THRU56

Checked  
3/29/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616186052 Logger: MB  
 Sub: ~~AquaSurvey~~ WO: ~~Geophysical~~ Crew: KC CIV MM  
 Date: 10/19/16 Time: 1506 Vessel: Panolan  
 Coordinates: Lat 44.58190733 Long -68.95973350 Plan Volume: —  
 Sampling Station: MM302-SWB / MM57  
 Weather: Sunny Winds: 0-5 knots Waters: Calm Traffic: None Water Temp: —  
 Measured Water Depth [NAVD88]: 16' Total Number of Deployments: —  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: -7.89'  
 Study Depth (NAVD88): -8.09'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	20%	Medium sand w/scat. FN sand. Scat. silt. TR FN gravel. Poorly graded. Very loose density	
2	0%	No recovery	
3	0%	No recovery	
<p><i>W/Limited solids, so no discrete sample collected          composited into sample</i></p> <p><del>MM57 THRU 62-SIEVE-02.11.2016-PRG</del>  <del>MM57 THRU 62-SIEVE-02.11.2016-PRG-ACU</del></p>			

10YR 71

Number of containers: 1-5gal bucket — — — Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type: standard PONAR  
 Capacity: —

Live Organisms present Y (N)  
 Oil-Like Present Y (N)  
 Odor Present Y (N)  
 Debris Present Y (N)  
 Photo Numbers: N/A  
 Comments: Additional notes on "Mendall Marsh Timeline"

Checked 3/20/2017 KE





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: Matt M.  
 Sub: ~~AquaSurvey~~ WO: ~~3 - Geophysical~~ Crew: Chris W. + Kerina C.  
 Date: 10/20/2016 Time: 11:11 Vessel: Mudpuppy Pamola  
 Coordinates: Lat 44.57459967 Long -68.85536267 Plan Volume: ~1 gallon  
 Sampling Station: MM-401C-SUB / MM58  
 Weather: Partly Winds: 0-5 knots Waters: calm Traffic: None Water Temp: 54.0  
 Measured Water Depth [NAVD88]: 5' Total Number of Deployments: —  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: -2.89'  
 Study Depth (NAVD88): -3.04'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	0%		
2	1%	Coarse Sand, 10 PR 4/3, Poorly Graded, Very loose dense	
3	20%	Fine Sand, SIFT Coarse Sand, Poorly Graded, Medium silt Density, 10 PR 4/3, TR Twigs, TR Shell Fragment	
<p>Limited solids, so no discrete sample collected          Composited into sample  <del>MM SFTHRU62-SIEVE-02112017-PR6</del>  <del>MM SFTHRU62-SIEVE-02112017-PR6-NEW</del></p>			

VC

Number of containers: 1 5 gallon Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type Ponar  
 Capacity Standard

Comments

Live Organisms present Y  N  
 Oil-Like Present Y  N  
 Odor Present Y  N  
 Debris Present Y  N TR Twigs

Photo Numbers  
 Tablet 12 @  
11:19 AM  
IMG-0065

Additional notes on "Mendall Marsh Timeline"

Checked  
 3/29/2017  
 KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine      Project No. 3616166052      Logger: MOT M.  
 Sub: AquaSurvey      WO: Geophysical      Crew: Chris W. Kesmacl.  
 Date: 10/20/16      Time: 11:55      Vessel: Pamela  
 Coordinates: Lat 44 56 98.7333      Long 68 35 38.250      Plan Volume:       
 Sampling Station: MM-4020-sub / MM59  
 Weather: Partly cloudy      Winds: 0-5 knots      Waters: Calm      Traffic: None      Water Temp: 51°F  
 Measured Water Depth [NAVD88]: 10'      Total Number of Deployments:       
 Correction to NAVD88 (+/- fl. from NAVD88): -5.89'      Conditions:       
 Mudline (Corrected Depth) @ NAVD88: -8.14'  
 Study Depth (NAVD88): -8.22'

### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	1%	fine sands	
2	1%	fine sands	
3	10%	fine sand, some coarse sand, poor gradient low density	
<p>Limited solids, so no discrete sample collected          composited into sample  <del>MM 57 THRU 62 - STEVE 02112017 PRE</del>  <del>MM 59 THRU 62 - STEVE 02112017 PRE</del></p>			

Number of containers: 1 gal      7 gal                          Grab Equipment  
 Type of container: bucket      liner bag      jar      other      Sampler Type London Power  
 Capacity     

Live Organisms present      Y  N   
 Oil-Like Present      Y  N   
 Odor Present      Y  N   
 Debris Present      Y  N   
 Photo Numbers  
N/A

Comments  
Additional notes on "Mendall Marsh Timeline"

Checked  
 3/29/2017  
 KC



amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: Matt M  
 Sub: ~~AquaSurvey~~ WO: ~~3 - Geophysical~~ Crew: Chris W. + Karina C.  
 Date: 9/20/2010 Time: 13:20 Vessel: Andromeda - Pamela  
 Coordinates: Lat 44.56345933 Long -68.85146000 Plan Volume: —  
 Sampling Station: MM-404C-SUB / MM60  
 Weather: 50 mph Winds: 0-5 knots Waters: Calm Traffic: None Water Temp: 54°F  
 Measured Water Depth [NAVD88]: 15' Total Number of Deployments: —  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: -7.39'  
 Study Depth (NAVD88): -7.43'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	1%	Clay	
2	5%	FAN Sand SCAFT Med. SAND	
3	0%		
<p>Limited solids, so not discrete sample collected          composited into sample  <del>MM57THRU62-SIEVE-02112011-PRG</del>  <del>MM52THRU62-SIEVE-02112011-PRG-AGW</del></p>			

Number of containers: 1-5 gallon — — — Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type Ponar  
 Capacity Standard  
 Live Organisms present Y  (N)  
 Oil-Like Present Y  (N)  
 Odor Present Y  (N)  
 Debris Present Y  (N)  
 Photo Numbers  
N/A  
 Comments  
Additional notes on "Mendall Marsh Timeline"

Checked  
3/20/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC; District of Maine Project No. 3616166052 Logger: Chris W.  
 Sub: AquaSurvey WO: ~~Geophysical~~ Crew: Matt M. + Kerina C.  
 Date: 10/20/16 Time: 1350 Vessel: ~~AquaSurvey~~  
 Coordinates: Lat 44 55 80.000 Long - 68 57 46.700 Plan Volume: ~~per cell~~  
 Sampling Station: MM-405C-SUR / MM61  
 Weather: 60° Mostly Cloudy Winds: 0-5 knots Waters: Calm Traffic: None Water Temp: 54°F  
 Measured Water Depth (NAVD88): ~~—~~ Total Number of Deployments: ~~—~~  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Conditions: ~~—~~  
 Mudline (Corrected Depth) @ NAVD88: 19.89'  
 Study Depth (NAVD88): 19.08'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	0%		
2	1%	Silt	
3	90%	Silt, TR fines sand, Nat coh Nat plat. V soft. 10YR 4/2	
<p>Limited solids, so no discrete sample collected          Composited into sample          MM57 THRU 62 SIEVE - 02/11/2017 PRE  <del>MM52 THRU 62 SIEVE - 02/11/2017 PRE - NEW</del></p>			

Number of containers: 5 gal — — — Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type: 5 gal bucket  
 Capacity: —

Live Organisms present Y N  
 Oil-Like Present Y N  
 Odor Present Y N  
 Debris Present Y N  
 Photo Numbers  
 Tab #12  
 1:54

Comments  
 Additional notes on "Mendall Marsh Timeline"

IMG-0070

Checked  
 3/20/2017  
 KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: Matt M.  
 Sub: ~~AquaSurvey~~ WO: ~~3 - Geophysical~~ 14120 Crew: Karina C. + Chris M.  
 Date: 10/20/16 Time: 2 Vessel: Pamola  
 Coordinates: Lat 44.55634950 Long -68.85791300 Plan Volume: —  
 Sampling Station: MM-406C-SUB / MM 62  
 Weather: SS Misty Winds: 0-5 knots Waters: Calm Traffic: Trucks on Road Water Temp: 54°  
 Measured Water Depth (NAVD88): 10' Total Number of Deployments: —  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: -1.89'  
 Study Depth (NAVD88): -1.13'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
<u>1</u>	<u>100%</u>	<u>Silt, Non-Coh, Non-plas, very soft con. / 10 YR</u>	<u>4/3</u>
<u>Discrete Sample MM62-10202016-SED</u>			
<u>Composited into sample, MM57-THRU62</u>			

Number of containers: 1 - 5 gallon Grab Equipment  
 Type of container: bucket  liner bag  jar  other  Sampler Type Ponar  
 Capacity

Live Organisms present Y    
 Oil-Like Present Y    
 Odor Present Y    
 Debris Present Y

Comments  
Near Road

Photo Numbers  
N/A

Additional notes on "Mendall Marsh Timeline"

Checked 3/29/2017 KC



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wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: Karina C.
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: Matt M, Chris W.
Date: 10/20/16	Time: 1030	Vessel: Parola
Coordinates: Lat 44.58439233	Long -68.860500	Plan Volume: -
Sampling Station: MM 400A-INT / MM64	Deploy No. -	Sub-tidal Location? Y <input checked="" type="checkbox"/>
Weather: 50% Cloudy	Winds: 0-5 Knots	Waters: Calm
Traffic: N/A	Water Temp: 54°	
Measured Water Depth (MWD): 2'	Core Penetration Length (ft.): <del>2</del> 1 FT	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 1'	
Mudline (Corrected Depth) @ NAVD88: -8.64'	Sample Length Retained (ft.): 1'	
Study Depth (NAVD88): -9.64'	Acceptable Core (80% recovery): <input checked="" type="checkbox"/> N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.33	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0		Silt, coh, Nat plas, soft,
0.4		10YR 3/1, sulfur like odor
		same with trace leaf
		fragments
Bottom 1 FT		Silt, coh, Low plas, medium stiff.
		10YR 4/1, sulfur like odor

Number of containers: 1 gal	1.54	-	-	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter
Liner Type: Soft Hand					4.0"
					EST. Volume
					.50 gal/ft
					3.5"
					.33 gal/ft

Live Organisms present	Y <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/>	<p>Comments</p> <p>Homogenized 2/15/2017 @ 12:20</p> <p>Discrete Sample MM64-1020 2016 SED</p> <p>Analyzed by Eurofins for Total Hg and Methyl Hg;</p> <p>by Alpha for TOC; and AmecFW-Durham for D422</p> <p>Grain Size and D2974 OC @ TBD</p>
Oil-Like Present	Y <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/>	
Odor Present	Y <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/>	
Debris Present	Y <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/>	
Photo Numbers	N/A	

Also composited into sample MM64THRU67

Checked  
3/29/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: MB  
 Sub: ~~AquaSurvey~~ WO: ~~6 - Geophysical~~ Crew: EC CW MM  
 Date: 10/19/16 Time: 1421 Vessel: Pander  
 Coordinates: Lat 44.57915533 Long -68.85780383 Plan Volume: ---  
 Sampling Station: MM300-1W / MM65  
 Weather: Sunny Winds: 0-5 knots Waters: calm Traffic: None Water Temp: ---  
 Measured Water Depth [NAVD88]: 10' Total Number of Deployments: ---  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Conditions: ---  
 Mudline (Corrected Depth) @ NAVD88: -2.39'  
 Study Depth (NAVD88): -2.65'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	0%	No recovery	
2	5%	Silt. Non-coh. Non-plas. very soft con. 10YR 9/2.	
3	5%	↓ same. TR twigs.	
4	35%	↓ same	
5	30%	↓ same + 10YR 2/1 (2 colors)	
6	0%	No recovery	

Number of containers: 2-5g Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type Standard PONAR  
 Capacity ---

Live Organisms present Y N  
 Oil-Like Present Y N  
 Odor Present Y N  
 Debris Present Y N  
 Photo Numbers N/A

Comments  
 2-5 gallon buckets predominantly water in both, so paired both into a dewatering bag to remove water. Then returned to clean bucket and homogenized it to collect discrete sample. MM65-10192016-SED. 2/15/2017 @ 17:30

Also MS/MSD was collected  
 Analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha KC for TOC;  
 and AmecFW-Durham for D422 Grain Size and D2974 @TBD;  
 Also, composited into sample MM64THRU67  
 Checked 3/29/2017 KC





amec  
foster  
wheeler

## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>KSCMA C.</i>
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: <i>Mat + M. Chisw.</i>
Date: <i>10/20/16</i>	Time: <i>1106</i>	Vessel: <i>Pamela</i>
Coordinates: Lat <i>44.57458383</i> Long <i>-68.85589067</i>	Plan Volume: <i>—</i>	
Sampling Station: <i>MM 401A - INT / MM 66</i>	Deploy No. <i>—</i>	Sub-tidal Location? Y <input checked="" type="checkbox"/> N
Weather: <i>50% cloudy</i>	Winds: <i>0-5 knots</i>	Waters: <i>Calm</i>
Traffic: <i>N/A</i>	Water Temp: <i>54.0</i>	
Measured Water Depth (MWD): <i>1 ft.</i>	Core Penetration Length (ft.): <i>0.7'</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>0.7'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>-3.64'</i>	Sample Length Retained (ft.): <i>0.7'</i>	
Study Depth (NAVD88): <i>-4.34'</i>	Acceptable Core (80% recovery): Y <input checked="" type="checkbox"/> N	
Required Penetration Length: <i>1'</i>	Core Volume Retained (gal.): <i>0.231</i>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top		
		<i>Silt, Cab, low plat, soft con.</i>
		<i>10YR3/1, Trace Root</i>
		<i>Gradier low - No plat</i>
		<i>Gradier soft - J+MF</i>
Bottom		

Number of containers: <i>1 gal</i>	<i>Agator</i>	<i>—</i>	<i>—</i>	Core Volumes	
Type of container: <i>bucket</i>	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <i>Soft</i>	Vibracorer: P3 P5 VT6 Other			4.0"	50gal/ft
	<i>Rush Corer</i>	Slambar		3.5"	33gal/ft

Live Organisms present	Y N	<p>Comments</p> <p><i>Homogenized 2/14/2017 KC</i></p> <p><i>Root Discrete Sample</i></p> <p><i>MM66 - 10202016 - SED</i></p> <p><i>Analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and Amer. Fw - Durham for D422 Grain Size and D4974 OC @ TBD</i></p>
Oil-Like Present	Y N	
Odor Present	Y N	
Debris Present	<input checked="" type="checkbox"/> N	
Photo Numbers	<i>N/A</i>	

Also, composited into sample MM64 THRU 67

Checked  
3/29/2017  
KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: Kristina C.
Sub: AquaSurvey	WO: 8 Geophysical	Crew: M. Martin Christou
Date: 10/20/16	Time: 1146	Vessel: Pupala
Coordinates: Lat 44.56974433	Long -68.85458917	Plan Volume: -
Sampling Station: MM 402A-INT/MM67	Deploy No. -	Sub-tidal Location? Y (N)
Weather: 50% Cloudy	Winds: 0.5 Knots	Waters: Calm
Traffic: N/A	Water Temp: 54.0	
Measured Water Depth (MWD): 4'	Core Penetration Length (ft.): 1'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 1'	
Mudline (Corrected Depth) @ NAVD88: 0.61'	Sample Length Retained (ft.): 1'	
Study Depth (NAVD88): -0.39'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.33	

All Length Measurements are in Decimal Feet

Sample Interval (ft):	Sample Id #	Description
Top 0'		Silt, Coh, Non Plat
		Soft Coh. 10YR 3/2
		Scat Twigs & TR Roots
Bottom 1'		

Homogenized  
2/15/2017 @ 14:50  
Discrete Sample  
MM67-10202016-SED  
KC

Number of containers: 1 gal	4 gal	-	-	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft (Hard)	Vibracorer: P3 P5 VT6	Other	Slambar	4.0"	.50gal/ft
	Push Corer			3.5"	.33gal/ft

Live Organisms present	Y (N)	Comments Slight siltier like d/c Scat Twigs & Trace Roots Discrete sample analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and AmecFul by Durham for D12 Grain Size and D2974 OC @ TBD
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	Y (N)	
Photo Numbers	1149 Tablet #12 IMG-0066	

Also, composited into sample MM64 THRU 67

Checked  
3/29/2017  
KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>Karina C.</u>
Sub: <u>AquaSurvey</u>	WO: <u>3-Geophysical</u>	Crew: <u>CHRIS, MWT+M.</u>
Date: <u>10/20/16</u>	Time: <u>1217</u>	Vessel: <u>Parkia</u>
Coordinates: Lat <u>44.561245</u>	Long <u>-68.8524855</u>	Plan Volume: <u>-</u>
Sampling Station: <u>MM403A-INT/MM68</u>	Deploy No. <u>-</u>	Sub-tidal Location? Y (N)
Weather: <u>50% Cloudy</u>	Winds: <u>0-5 Knots</u>	Waters: <u>Calm</u>
	Traffic: <u>N/A</u>	Water Temp: <u>54.0</u>
Measured Water Depth (MWD): <u>1'</u>	Core Penetration Length (ft.): <u>1'</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.89'</u>	Recovered Core Length (ft.): <u>1'</u>	
Mudline (Corrected Depth) @ NAVD88: <u>3.36'</u>	Sample Length Retained (ft.): <u>1'</u>	
Study Depth (NAVD88): <u>2.36'</u>	Acceptable Core (80% recovery): <u>(Y) N</u>	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.33</u>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample ID #	Description
Top	0	Discrete Sample / Jarred with Jar at Root & Leaves
	1.1	MM68-10202016-SEP 10YR 4/1
		Homogenized 2/15/2017 @ 11:10
		+ Composited into sample 1
	0.5	MM68 THRU 71 COARSE JAR JAR
		↑
Bottom	1'	Clay, TR silt, coh. med plas, med stiff Gley 4/10Y

Number of containers: <u>1 gal</u>	<u>1 gal</u>	-	-	Core Volumes	
Type of container: <u>bucket</u>	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <u>Soft</u>				4.0"	.50 gal/ft
				3.5"	.33 gal/ft

Live Organisms present	Y (N)	Comments - slight odor - Jar at Root & Leaves Discrete sample analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and AmecFW-Durham for D422 Grain Size and D2974 OC@TBD
Oil-Like Present	Y (N)	
Odor Present	(Y) N	
Debris Present	(Y) N	
Photo Numbers	<u>N/A</u>	

Checked  
3/29/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: KATIKAC
Sub: AquaSurvey	WO: <del>2-Geophysical</del>	Crew: Matt M. Shriv.
Date: 10/20/16	Time: 1300	Vessel: PUMCIA
Coordinates: Lat 44.5633820	Long -68.85172267	Plan Volume: -
Sampling Station: MM404A-TNT/MM69	Deploy No. -	Sub-tidal Location? Y (N)
Weather: JS Cloudy	Winds: 0-5KNOTS	Waters: calm
Traffic: NA	Water Temp: 54	
Measured Water Depth (MWD): 4'	Core Penetration Length (ft.): 1.3'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 1.3'	
Mudline (Corrected Depth) @ NAVD88: 5.11'	Sample Length Retained (ft.): 1.3'	
Study Depth (NAVD88): 3.81'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1.3'	Core Volume Retained (gal.): 0.429	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0	↓	Silts, cch, nonplas, soft coh, 10YR 3/2, 10YR 2/1 JCOE roots
1.5		Silt, coh, nonplas, soft coh 10YR 2/1, JCOE roots, JCOE leaves, JCOE TWIGS.
Bottom 1.3'		

Number of containers: 1 gal	Agot	-	-	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard	Vibracorer: P3 P5 VT6 Other			4.0"	.50gal/ft
	Push Corer			3.5"	.33gal/ft

Live Organisms present	Y (N)	<p>Comments</p> <p>Homogenized 2/15/2017 @ 16:30</p> <p>slight sulfur like odor - twigs, roots, leaves</p> <p>Discrete Sample MM69-10202016-SED</p> <p>Analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and AmecFW-Durham for D422 Grain Size and D2974 OC@TBD</p>
Oil-Like Present	Y (N)	
Odor Present	(X) (N)	
Debris Present	(X) (N)	
Photo Numbers	N/A	

Also, composited into sample MM68THRU71

Checked 3/29/2017 KC





amec  
foster  
wheeler

## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Kartha, C.</i>
Sub: <del>AquaSurvey</del>	WO: <del>3-Geophysical</del>	Crew: <i>MATT M. SHROU.</i>
Date: <i>10/20/16</i>	Time: <i>1341</i>	Vessel: <i>Pamala</i>
Coordinates: Lat <i>44.55791300</i>	Long <i>-68.8574067</i>	Plan Volume: <i>---</i>
Sampling Station: <i>MM 465A-INT/MM70</i>	Deploy No. <i>---</i>	Sub-tidal Location? Y (N)
Weather: <i>Sol (cloudy)</i>	Winds: <i>0-5knot</i>	Waters: <i>calm</i>
	Traffic: <i>N/A</i>	Water Temp: <i>54</i>
Measured Water Depth [MWD]: <i>5'</i>	Core Penetration Length (ft.): <i>1'</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>1'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>3.36</i>	Sample Length Retained (ft.): <i>1'</i>	
Study Depth (NAVD88): <i>2.36'</i>	Acceptable Core (80% recovery): <i>(Y) N</i>	
Required Penetration Length: <i>1'</i>	Core Volume Retained (gal.): <i>0.33</i>	

**All Length Measurements are in Decimal Feet**

Sample Interval (ft.)	Sample ID #	Description
Top	0	<i>slit, non coh, non plas, soft coh. 10YR 3/3. ABNT ROST. strong sulfur like odor.</i>
Bottom	1'	
		<i>Discrete Sample MM70-10202016-S6D + Composited into Sample MM68 THRU 71</i>

Number of containers:	<i>---</i>	<i>---</i>	<i>---</i>	<i>---</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <i>(H)</i> Hard		Vibracorer: P3 P5 VT6	Other		4.0"	.50gal/ft
		Push Corer	Slambar		3.5"	.33gal/ft
Live Organisms present	Y <i>(N)</i>	<b>Comments</b> <i>- sulfur like ROST</i> <i>Analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and AmecFW-Durham for B422 Grain Size and D2974 OC @ TBD</i>				
Oil-Like Present	Y <i>(N)</i>					
Odor Present	<i>(N)</i>					
Debris Present	<i>(N)</i>					
Photo Numbers	<i>Tablet #12</i> <i>1341 IMG-006</i>					

*homogenized  
2/15/2017  
9:00  
KC*

*Checked  
3/29/2017  
KC*





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: Karma C.
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: Matt + M. Christy
Date: 4/20/16	Time: 1400	Vessel: Parula
Coordinates: Lat 44.55635083	Long -68.85779050	Plan Volume: -
Sampling Station: MM906A-INT/MM71	Deploy No. -	Sub-tidal Location? Y (N)
Weather: 50% Cloud	Winds: 0-5 KNOTS	Waters: CALM
Traffic: N/A	Water Temp: 54	
Measured Water Depth (MWD): -	Core Penetration Length (ft.): 0.5'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 0.5'	
Mudline (Corrected Depth) @ NAVD88: 8.36'	Sample Length Retained (ft.): 0.5'	
Study Depth (NAVD88): 7.86'	Acceptable Core (80% recovery): Y (N)	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.165	
All Length Measurements are in Decimal Feet		
Sample Interval (ft)	Sample Id #	Description
Top 0	↓	JN4, TR Fine sand, coh, Non plas, very dark, 10YR 4/1
0.3		JN4, TR Fine sand, TR coarse sand, coh, non plas, medium diff, 10YR 3/1, TR Roots
Bottom 0.5		
Number of containers: 1 gal	1 gal	-
Type of container: bucket	liner bag	jar other
Liner Type: Soft Hard	Vibracorer: P3 P5 VT6 Other	4.0"
	Push Corer	Slambar
Live Organisms present	Y N	50gal/ft
Oil-Like Present	Y N	3.5"
Odor Present	Y N	
Debris Present	Y N	
Photo Numbers	<p>Comments</p> <p>Homogenized 02/15/2016 @ 15:35</p> <p>JN4 odor diff 1M discrete samples</p> <p>TR Roots MM71 - 10/20/2016 - SED</p> <p>Analyzed by Eurofins for Total Hg and Methyl Hg; by Alpha for TOC; and Amec FW-Durham for D422 Grain Size and D2974 OC@TRD</p>	

Also, composited into sample MM68THR071

Checked  
3/29/2017  
KC









amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

VE50

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MJ3</u>
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: <u>KC CW</u>
Date: <u>10/15/16</u>	Time: <u>13:52</u>	Vessel: <u>Pamola</u>
Coordinates: Lat <u>44.53289167</u> Long <u>-68.75150350</u>	Plan Volume: <u>---</u>	
Sampling Station: <u>SU303A-int / VE50</u>	Deploy No. <u>---</u>	Sub-tidal Location? Y <input checked="" type="radio"/> N
Weather: <u>Sunny</u>	Winds: <u>---</u>	Waters: <u>---</u>
	Traffic: <u>---</u>	Water Temp: <u>---</u>
Measured Water Depth (MWD): <u>3'</u>	Core Penetration Length (ft.): <u>1'</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Recovered Core Length (ft.): <u>1'</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-3.38'</u>	Sample Length Retained (ft.): <u>1'</u>	
Study Depth (NAVD88): <u>-4.58'</u>	Acceptable Core (80% recovery): Y <input checked="" type="radio"/> N	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.33</u>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0'		Silt, non-coh, non-plas, very soft con. 7.5 YR 2.5/1. TR
0.4'		same. soft con. very strong sulfur-like odor.
Bottom 1'		

Number of containers: <u>---</u>	Core Volumes
Type of container: bucket <input checked="" type="radio"/> liner bag <input checked="" type="radio"/> jar <input type="radio"/> other <input type="radio"/>	Nominal core-barrel diameter
Liner Type: Soft <input checked="" type="radio"/> Hard <input type="radio"/>	EST. Volume
Vibracore: R3 P5 VT6 Other	4.0" .50gal/ft
Push Corer Slambar	<u>3.5" .33gal/ft</u>

Live Organisms present Y <input checked="" type="radio"/> N <input type="radio"/>	Comments <u>SWAY like WC</u> <u>VE50-10152016-SED</u> <u>VE505253-STEVE-03072017-SED PRE</u> <u>VE505253-STEVE-03072017-WCH</u>
Oil-Like Present Y <input type="radio"/> N <input checked="" type="radio"/>	
Odor Present Y <input checked="" type="radio"/> N <input type="radio"/>	
Debris Present Y <input checked="" type="radio"/> N <input type="radio"/>	
Photo Numbers <u>Tab let #10</u> <u>IMG-0251 +</u> <u>IMG-0252</u>	

Discrete Sample analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630); by Alpha for TOC Lloyd-Kahn; by AmecFW-Durham D422 grain size and D2974 OC @ TBD

Also, composited into sample VE505253

Checked  
3/25/2017  
KC





amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

VE52

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: AquaSurvey	WO: <del>2 - Geophysical</del>	Crew: KC, CW
Date: 10/15/2016	Time: 12:44	Vessel: Puma
Coordinates: Lat 44.52162633	Long -68.75937833	Plan Volume: —
Sampling Station: SV301B-INT / VE52	Deploy No. —	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: —	Waters: —
	Traffic: —	Water Temp: —
Measured Water Depth (MWD): 7'	Core Penetration Length (ft.): 0.5'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.33'	
Mudline (Corrected Depth) @ NAVD88: -3.89'	Sample Length Retained (ft.): 0.5'	
Study Depth (NAVD88): -4.39'	Acceptable Core (80% recovery): Y (N)	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.109	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0		Air
		↓
0.17		FRDT <sup>TM</sup> Sand, occ. medium sand, scat coarse sand
		TR coarse gravel
		Poorly graded, very loose density. to MB SYR 2-yr organics: kelp root, seaweed root, clam. Slight sulfur-like odor. TR sawdust chips
Bottom 0.5'		

Number of containers: —	Core Volumes
Type of container: bucket	Nominal core-barrel diameter
Liner Type: Soft (Hard)	EST. Volume
Vibracorer: P3 P5 VT6 Other	4.0" .50gal/ft
Push Cofer	Slambar
	3.5" .33gal/ft

Live Organisms present	Y (N)
Oil-Like Present	Y (N)
Odor Present	Y (N)
Debris Present	Y (N)

Photo Numbers  
 Tablet #10  
 IMG-0245 +  
 IMG-0246

Comments  
 VE52-10152016-JED  
 VE505253-~~JHEVE-03022017-JED-PRE~~  
 VE505253-~~JHEVE-03022017-WCH~~

Discrete sample analyzed by Eurofin Total Hg (1631) and Methyl Hg (1630); by Alpha for TOC Lloyd-Kahn; by AmecFW-Durham D422 Grain Size and D2974 OC @ TBD

Also, composited into sample VE505253

Checked  
3/31/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

VE 53

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MBuckman
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: KC, CW
Date: 10/15/16	Time: 1150	Vessel: Pannola
Coordinates: Lat 44.51710317	Long -68.75608350	Plan Volume: -
Sampling Station: SV300B-INT / VE53	Deploy No. -	Sub-tidal Location? Y (N)
Weather: SUNNY	Winds: -	Waters: -
Traffic: -	Water Temp: -	
Measured Water Depth (MWD): 6.5'	Core Penetration Length (ft.): 0.85	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.85	
Mudline (Corrected Depth) @ NAVD88: -0.38'	Sample Length Retained (ft.): 0.85	
Study Depth (NAVD88): -1.25'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.281	
All Length Measurements are in Decimal Feet		
Sample Interval (ft.)	Sample Id #	Description
Top 0'		Silt with TR FN sand, non-con, non-plas, soft con. 5YR 2.5/1- OCC. sawdust WC. scat. twigs strong sulfur-like odor. scat WC
0.75'		SAME. TR FN Gravel
Bottom 0.85'		
Number of containers: -	1 gal	Core Volumes
Type of container: bucket	liner bag	Nominal core-barrel diameter
Liner Type: Soft Hard	Vibracorer: P3 P5 VT6 Other	EST. Volume
	Push Corer	Slambar
Live Organisms present Y (N)		4.0"
Oil-Like Present Y (N)		3.5"
Odor Present (X) N		50gal/ft
Debris Present (Y) N		33gal/ft
Photo Numbers	Comments	
Tablet # 10	sulfur like WC, twigs VE 53-10152916-JED	
IMG_0242	VE505253 - JIENE-03072017-JED-PRE	
	VE505253 - JIENE-03072017-WCH	
	RT	

Discrete Sample analyzed by Eurofins for (R2) Total Hg (1631) and Methyl Hg (1630); by Alpha (R2) for TOC, Logd-Khan; by Amec FW-Durham D422 grain size and D2974 OC@TBD

Also, composited into sample VE505253

Checked 3/31/2017 KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

VE58

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: KC CW
Date: 10/15/16	Time: 1403	Vessel: Pamola
Coordinates: Lat 44.53148267 Long -68.75698117	Plan Volume: -	
Sampling Station: SV303B-INT / VE58	Deploy No. -	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: -	Waters: -
Traffic: -	Water Temp: -	
Measured Water Depth [MWD]: 4.3'	Core Penetration Length (ft.): 1.35'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 1.35'	
Mudline (Corrected Depth) @ NAVD88: -5.18'	Sample Length Retained (ft.): 1.35'	
Study Depth (NAVD88): -6.53'	Acceptable Core (80% recovery): <input checked="" type="radio"/> N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.446	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0'		Silt. non-coh. non-plas. soft-con. 7.5YR 2.5/1 and 2.5Y 4/1
0.4'		Scat. WC sand-dust or. TR twigs PRDM. silt with occ FN sand particles. coh. non-plas. medium stiff con. scat. <sup>wood</sup> chips. moderate sulfur-like odor. 2.5Y 4/1
Bottom 1.35'		

strong sulfur-like odor

Number of containers: -	Core Volumes
Type of container: bucket	Nominal core-barrel diameter
Liner Type: Soft Hard	EST. Volume
Vibracore: P3 P5 VT6	4.0" .50gal/ft
Push Core: Slambar	3.5" .33gal/ft

Live Organisms present	Y (N)	Comments VE58_10152016_JED VE58 THRU 60 - STEVE. 03072017 - JED. PRE VE58 THRU 60 - STEVE. 03072017 - WCH RT RT RT
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	Y (N)	
Photo Numbers	Tablet #10 IMG_0253	

Discrete Sample analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1530); by Alpha for TOC Lloyd-Kahn; by Amee FW-Durham D422 grain size and D2974 OC@TBD

Also, composited into sample VE58 THRU 60

Checked  
3/31/2017  
KC





arne  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

VE59

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	10 m WO: <del>8 - Geophysical</del>	Crew: KC, CW
Date: 12/15/16	Time: 1230	Vessel: Painola
Coordinates: Lat 44.52378667	Long -108.76021283	Plan Volume: -
Sampling Station: SV301A-int	VE59-10152016-SED	Sub-tidal Location? Y <input checked="" type="checkbox"/> N
Weather: -	Winds: -	Waters: -
Traffic: -	Water Temp: -	
Measured Water Depth [MWD]: 4.5'	Core Penetration Length (ft.): 1'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 1'	
Mudline (Corrected Depth) @ NAVD88: -0.38'	Sample Length Retained (ft.): 1'	
Study Depth (NAVD88): -1.38'	Acceptable Core (80% recovery): <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.33	

mis labeled  
on GPS as  
302A-int

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id.#	Description
Top 0'		Silt with TR FN sand, non-con, non-plas, soft con, 5YR 2.5/1, occ. sawdust WC. Scat. twigs, strong sulfur-like odor. scat. WC
0.75'		same. TR FN gravel
Bottom 1'		

Number of containers: -	1 gal	-	-	Core Volumes
Type of container: bucket	liner bag	Jar	other	Nominal core-barrel diameter
Liner Type: Soft <input checked="" type="checkbox"/> Hard <input type="checkbox"/>	Vibraeener: P3 P5 VT6	Other		4.0"
	Push Corer	Slambar		3.5"
				EST. Volume
				50gal/ft
				33gal/ft

Live Organisms present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>
Oil-Like Present	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>
Odor Present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>
Debris Present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>
Photo Numbers	
Tablet #10	
IMG-0243 +	
IMG-0244	

Comments

VE59-10152016-SED

VE58THRU60 - STEVE-03072017 SED-PRE

VE58THRU60 - STEVE-03-72017-WET

R1

R2

R3

Discrete Sample analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630); by Alpha for TOC Lloyd-Kahn; by Arnee FW-Durham D422 grain size and D2974 cc @TSD

Also, composited into sample VE58THRU60

checked  
3/31/2017  
KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

VE60

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MM3
Sub: AquaSurvey	WO: <del>3</del> Geophysical	Crew: KC
Date: 10/15/16	Time: 1312	Vessel: Pamela
Coordinates: Lat 44.52204501	Long -68.75730733	Plan Volume: —
Sampling Station: SV302A-INT / VE60	Deploy No. —	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: —	Waters: —
Traffic: —	Water Temp: —	
Measured Water Depth (MWD): 3.3'	Core Penetration Length (ft.): 0.85'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.85'	
Mudline (Corrected Depth) @ NAVD88: -5.19'	Sample Length Retained (ft.): 0.85'	
Study Depth (NAVD88): -6.03'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.281	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top	○	SIH with TR FN sand, non-con non-plas, soft con. S&R 2.5/1 occ. sawdust WC. scat. TWIG slight sulfur-like odor. scat. WC.
0.75'		
Bottom	0.85'	same TR-FN gravel

Number of containers: —	1 gal	—	—	Core Volumes
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter
Liner Type: Soft (Hard)	Vibracorer: P3 P5 VT6	Other		4.0"
	Push-Gorer	Slambar		3.5"
				.50gal/ft
				.33gal/ft

Live Organisms present	Y (N)	Comments
Oil-Like Present	Y (N)	
Odor Present	(X) N	
Debris Present	(X) N	
Photo Numbers	Tablet #10 IMG-0247 + IMG-0248	

VE 60.10152016-JED  
~~VE58 THRU60-JIEVE-03072017-JED-PRE~~  
~~VE58 THRU60-JIEVE-03072017-WCH~~

Discrete Sample analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630); by Alpha for TOC Lloyd-Kahni; by Amedeo-Durham for D422 Grain Size and D2974 OC @ TBQ

Also, composited into sample VE58THRU60

Checked  
3/31/2017  
KC



10



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <b>MB</b>
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: <b>KC CW</b>
Date: <b>10/17/16</b>	Time: <b>17:00</b>	Vessel: <b>Pamolan</b>
Coordinates: Lat <b>44.50987000</b> Long <b>-68.78660117</b>	Plan Volume: <b>-</b>	
Sampling Station: <b>EC309B-INT/VNS1</b>	Deploy No. <b>-</b>	Sub-tidal Location? Y (N)
Weather: <b>SUNNY</b> Winds: <b>0-5 knots</b> Waters: <b>-</b>	Traffic: <b>None</b>	Water Temp: <b>-</b>
Measured Water Depth (MWD): <b>2'</b>	Core Penetration Length (ft.): <b>1.6'</b>	
Correction to NAVD88 (+/- ft. from NAVD88): <b>-5.38'</b>	Recovered Core Length (ft.): <b>1.6'</b>	
Mudline (Corrected Depth) @ NAVD88: <b>-8.38'</b>	Sample Length Retained (ft.): <b>1.6'</b>	
Study Depth (NAVD88): <b>-9.98'</b>	Acceptable Core (80% recovery): <b>(Y) N</b>	
Required Penetration Length: <b>1'</b>	Core Volume Retained (gal.): <b>0.528</b>	

All Length Measurements are in Decimal Feet

Sample Interval (ft)	Sample ID #	Description
Top 0'		Silt-TR FN sand. Non-coh. Non-plas. Very soft coh. @ 0.6' 3/4" APD 10 YR 4/3 Moderate sulfur-like odor.
0.6		↓ @ silt. coh. low-plas. Med. dense, stiff. TR sawdust size WC. 10 YR 3/1. Moderate sulfur-like odor
1.1		@ 1.1' Medium gravel seam
Bottom 1.6'		same as 0.6' to 1.1'

Number of containers: <b>-</b>	<b>1 gal</b>	<b>-</b>	<b>-</b>	Core Volumes
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter
Liner Type: Soft <b>(Hard)</b>	Vibracore	P3 P5 VT6	Other	4.0"
	Push Core		Slambar	3.5"
				EST. Volume
				.50 gal/ft
				.33 gal/ft

Live Organisms present	Y (N)
Oil-Like Present	Y (N)
Odor Present	Y (N)
Debris Present	Y (N)
Photo Numbers	
<b>Tablet # 10</b>	
<b>IMG-0298</b>	

Comments

**2/18/2-17/1 Composite Sample**

~~VNS1THRU58-SIEVE-02082017-IED~~

~~VNS1THRU58-SIEVE-02082017-PRE~~

~~VNS1THRU58-SIEVE-02082017-WC~~

~~VNS1THRU58-SIEVE-02082017-FINE~~

~~VNS1THRU58-SIEVE-02082017-UH1A~~

Discrete Sample VNS1-10172016-SED analyzed by Eurofin for Total Hg and MeHg; by AmecFW-Purham for D422 Grain Size and D854 OC@TBS

(1630)

Checked  
3/30/2017  
KC



(A)



amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: AquaSurvey	WO: <del>3</del> Geophysical	Crew: KCW
Date: 10/17/16	Time: 16:41	Vessel: Panola
Coordinates: Lat 44.51772317	Long - 68.7787350	Plan Volume: -
Sampling Station: EC3083-INT / VN52	Deploy No. -	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: 0-5 knots	Waters: -
	Traffic: -	Water Temp: -
Measured Water Depth [MWD]: 2.1'	Core Penetration Length (ft.): 0.95'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.95'	
Mudline (Corrected Depth) @ NAVD88: -7.23'	Sample Length Retained (ft.): 0.95'	
Study Depth (NAVD88): -8.28'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.31	

All Length Measurements are in Decimal Feet

Sample Interval (ft)	Sample Id #	Description
Top 01		Silt. Non-coh. Non-plas. very soft to GLEY 2.5/N, very strong sulfur-odor, TR roots.
0.3		FN-med gravel interface
0.35		Silt. Med sand. low-plas. soft coh. scat. twig. TR shell fragments. TR roots. consistent.
		↓
0.85		same + interbedded ABNT WC
0.90		
Bottom 0.95		↓ same. Then same as 0.35-0.85

Number of containers: -	1 gal	-	-	Core Volumes
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter
Liner Type: Soft <u>Hard</u>	Vibracorer: P3 P5 VT6	Other	Slambar	EST. Volume
	Push Corer			4.0" → .50gal/ft
				3.5" → .33gal/ft

Live Organisms present	Y (N)
Oil-Like Present	Y (N)
Odor Present	(N) N
Debris Present	(Y) N

Comments

Stone twig, gravel

2/7/2017 Homogenized into Discrete Sample analyzed by Eurofins for Total Hg and MeHg; by Amec FW-Durham for D422 Grain Size and D2974@TBI

Also, Composited into sample VN51 THRU 58

Checked  
3/30/2017  
KC

VN52 1017 2016 SEC



2



amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: AquaSurvey	WO: <del>2 - Geophysical</del>	Crew: KC CW
Date: 10/17/16	Time: 16:22	Vessel: Pannole
Coordinates: Lat 44.516493033 Long -68.77070317	Plan Volume: —	
Sampling Station: EC307B-int / VN53	Deploy No. —	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: 5 knots	Waters: —
	Traffic: —	Water Temp: —
Measured Water Depth (MWD): 3.41	Core Penetration Length (ft.): 0.9'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.9'	
Mudline (Corrected Depth) @ NAVD88: -7.78'	Sample Length Retained (ft.): 0.9'	
Study Depth (NAVD88): -8.68'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.30	

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample ID #	Description
Top 0'		Silt-TR FN sand. coh. non-plas
0.3'		Soft con. TR twigs. Strong sulfur-like odor. Gley 1 2 <sup>8</sup> /10Y and 2
		1 gravel piece
		Silt. coh. low plas. med stiff con.
		GLEY 1 4/10Y. TR shell frag.
Bottom 0.9'		

Number of containers: —	1 gal	—	—	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <u>Hard</u>	Vibracorer: P3 P5 VT6	Other		4.0"	.50gal/ft
	<u>Push Corer</u>	Slambar		3.5"	.33gal/ft

Live Organisms present	Y (N)	<b>Comments</b> strong twigs + shell frag. VN53-10172016-SED Discrete sample analyzed by Eurofins for Total Hg and Methg; by Amec FW-Durham for D422 Grain size and D2974 OC @ TBD
Oil-Like Present	Y (N)	
Odor Present	(Y) N	
Debris Present	(Y) N	
Photo Numbers	Tablet #10 IMG-0290 + IMG-0291	

Also, composited into sample VN51 THRU 58

Checked  
3/30/2017  
KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MB</u>
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: <u>KC CW</u>
Date: <u>10/17/16</u>	Time: <u>15:45</u>	Vessel: <u>Panola</u>
Coordinates: Lat <u>44.516016S83</u>	Long <u>-68.76764800</u>	Plan Volume: <u>---</u>
Sampling Station: <u>EC306B-INT / VN54</u>	Deploy No. <u>---</u>	Sub-tidal Location? Y (N)
Weather: <u>Sunny</u>	Winds: <u>5 knots</u>	Waters: <u>---</u>
	Traffic: <u>---</u>	Water Temp: <u>---</u>
Measured Water Depth (MWD): <u>3.7'</u>	Core Penetration Length (ft.): <u>1'</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Recovered Core Length (ft.): <u>1'</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-6.78'</u>	Sample Length Retained (ft.): <u>1'</u>	
Study Depth (NAVD88): <u>-7.78'</u>	Acceptable Core (80% recovery): <u>(Y) N</u>	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.33</u>	

All Length Measurements are in Decimal Feet

Sample Interval (ft)	Sample ID #	Description
Top 0'		Silt. Non-coh. Non-plas. very soft con
		5Y 3/4. TR particle size woodchip.
		Moderate sulfur-like odor.
0.3'		↓
		Silt. coh. Non-plas. Soft con.
		10YR 2/1. Moderate sulfur-like odor.
		↓
Bottom 1'		

Number of containers: <u>---</u>	<u>1 gal</u>	<u>---</u>	<u>---</u>	Core Volumes	
Type of container: <u>Bucket</u>	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <u>Soft</u>	Vibracorer: P3 P5 VT6	Other		4.0"	.50gal/ft
	Push Corer	Slambar		3.5"	.33gal/ft

Live Organisms present	<u>Y</u>	<u>N</u>	Comments Mod. 2/8/2017: Homogenized into discrete sample WC VN54 - 10172016 - SED analyzed by Eurofins for Total Hg and MeHg; by AmecFoster-Durham for D422 Grain Size and D2974 OC@TBD
Oil-Like Present	<u>Y</u>	<u>N</u>	
Odor Present	<u>Y</u>	<u>N</u>	
Debris Present	<u>Y</u>	<u>N</u>	
Photo Numbers	<u>Tablet #10</u> <u>IMG-0282</u>		

Also, composited into sample VN51 THRU 58

Checked  
3/30/2017  
KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	WO: <del>3-Geophysical</del>	Crew: KC CW
Date: 10/17/16	Time: 15:20	Vessel: Pamola
Coordinates: Lat 44.5532500 Long -68.7690250	Plan Volume: -	
Sampling Station: EC305B-INT/VN55	Deploy No. -	Sub-tidal Location? Y (N)
Weather: SUNNY	Winds: 5 knots	Waters: -
Traffic: -	Water Temp: -	
Measured Water Depth (MWD): 4'	Core Penetration Length (ft.): 1.0'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 1.0'	
Mudline (Corrected Depth) @ NAVD88: -5.38'	Sample Length Retained (ft.): 1.0'	
Study Depth (NAVD88): -6.38'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.33	
All Length Measurements are in Decimal Feet		
Sample Interval (ft.)	Sample ID	Description
Top 0'		sil. non-coh. non-plas. very soft con.
0.4		grey 1/3" TR twigs. slight sulfur-like odor.
		↓
		same. cohesive
		↓
Bottom 1.0		↓
Number of containers: -	1 gal	-
Type of container: bucket	liner bag	jar other
Liner Type: Soft Hard	Vibracore: P3 P5 VT6 Other	Nominal core-barrel diameter
	Push Corer	Slambar
		4.0" .50gal/ft
		3.5" .33gal/ft
Live Organisms present Y (N)	<p>Comments</p> <p>2/8/2017 Homogenized into discrete sample analyzed by Eurotins for Total Hg and MeHg; by Amecfw-Durham for D<sub>422</sub> Grain size and D<sub>2974</sub> OC @ TBD</p>	
Oil-Like Present Y (N)		
Odor Present (Y) N		
Debris Present (Y) N		
Photo Numbers		
Tablet # 10		
IMG-0281		

VN55 - 10172016 - SED

Also, composited into sample VN51THRU58

Checked  
3/30/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: KC CN
Date: 10/17/16	Time: 14:41	Vessel: Panola
Coordinates: Lat 44.54643033	Long - 68.76357600	Plan Volume: -
Sampling Station: EC304B-INT / VN56	Deploy No. -	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: 4-5 knots	Water Temp: -
Traffic: None		
Measured Water Depth (MWD): 4.5'	Core Penetration Length (ft.): 0.9'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.9'	
Mudline (Corrected Depth) @ NAVD88: -2.88'	Sample Length Retained (ft.): 0.9'	
Study Depth (NAVD88): -3.78'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.30	

All Length Measurements are in Decimal Feet

Sample Interval (ft)	Sample ID #	Description
Top 0'		Silt. TR FN sand. non-coh.
0.2'	VN56-101716-SED	non-plas. Very soft con. GLEY 3/10x. TR. Sawdust size WC. Slight sulfur-like odor.
		Silt. TR FN sand. coh. non-plas. soft con. 1 OR 2.5/1. TR twigs. TR sawdust size WC. Moderate sulfur-like odor.
Bottom 0.9'		

Discrete Sample - VN56-10172016-SED

Number of containers: -	1 gal	-	-	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	Hard	Vibracore: P3 P5 VT6	Other	4.0"	.50gal/ft
	Push Corer	Slambar		3.5"	.33gal/ft

Live Organisms present	Y (N)	Comments Slight to mod. WC 2/7/2017: Homogenized and Discrete Sample VN56-10172016-SED analyzed by Eurofins for total Hg and methyl Hg; Amec Foster Wheeler-Durham for organic content and grain size. ↳ D2974@TBD      ↳ D422
Oil-Like Present	Y (N)	
Odor Present	(N) N	
Debris Present	(N) N	

Photo Numbers  
 Tablet #10 KC  
 IMG-0277

Also, composited into sample VN51THRU58

Checked 3/30/2017 KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine      Project No. 3616166052      Logger: MB  
 Sub: ~~Aqua Survey~~      WO: ~~Geophysical~~      Crew: KC CW  
 Date: 10/15/14      Time: 1533      Vessel: Pamola  
 Coordinates: Lat 44.54635067      Long -68.76326000      Plan Volume: —  
 Sampling Station: EL301B-Int/VN57      Deploy No. —      Sub-tidal Location? Y (N)  
 Weather: Sunny      Winds: —      Waters: —      Traffic: —      Water Temp: —  
 Measured Water Depth (MWD): 1'      Core Penetration Length (ft.): 1.8'  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38'      Recovered Core Length (ft.): 1.8'  
 Mudline (Corrected Depth) @ NAVD88: -1.38'      Sample Length Retained (ft.): 1.8'  
 Study Depth (NAVD88): -3.18'      Acceptable Core (80% recovery): (Y) N  
 Required Penetration Length: 1'      Core Volume Retained (gal.): 0.59

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0'		Silt. Non-coh. Non-plas. Very soft coh. GLEY 2.5/10y. consistent throughout. TR sand size WC. Very strong sulfur-like odor
0.6'		Silt. TR FN sand. coh. low-plas. soft coh. GLEY 2.5/10y. TR sand size WC. Very strong sulfur-like odor
Bottom 1.8'		

Number of containers:	—	1 gal	—	—	Core Volumes
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter
Liner Type: Soft (Hard)		Vibracorer: P3 P5 VT6 Other			4.0"
		Push Corer	Slambar		3.5"
					EST. Volume
					.50gal/ft
					.33gal/ft

Live Organisms present: Y (N)  
 Oil-Like Present: (Y) (N)  
 Odor Present: (Y) (N)  
 Debris Present: (Y) (N)  
 Photo Numbers: Tablet #10, IMG-0262 + IMG-0263

**Comments**  
 Discrete sample VN57-10152016-SED analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630); by AmecFW-Durham for D422 Grain Size and D2974 OC @ TBD  
 Also, composited into sample VN51THRU58

Checked 3/30/2017 KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: AquaSurvey	WO: <del>3</del> Geophysical	Crew: KC CW
Date: 10/15/16	Time: 1442	Vessel: Pamola
Coordinates: Lat 44.531658583	Long -108.76079767	Plan Volume: —
Sampling Station: EC300B-INT/VN58	Deploy No. 2	Sub-tidal Location? Y (N)
Weather: SUNNY	Winds: —	Waters: —
Traffic: —	Water Temp: —	
Measured Water Depth (MWD): 8.7'	Core Penetration Length (ft.): 0.5'	MB MB MB
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.5'	
Mudline (Corrected Depth) @ NAVD88: -12.58'	Sample Length Retained (ft.): 0.5'	
Study Depth (NAVD88): -13.58'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.33	

All Length Measurements are in Decimal Feet

Sample Interval (ft)	Sample Id #	Description
Top 0'		Silt. coh. non-plas. soft con.
		Gr 1/4 2.5/N. ABNT saw dust <sup>wood chips</sup>
0.8'		Silt. scat <sup>to coarse</sup> FN sand. consistent, low-plas.
		Gr 1/4 1/N. soft con. scat. WC
Bottom 1'		strong sulfur-like odor.

Strong sulfur-like odor.

Number of containers: —	1 gal	—	—	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <u>Hard</u>	Vibracorer: P3 P5 VT6	Other		4.0"	.50 gal/ft
	<u>Push Corer</u>	Slambar		3.5"	.33 gal/ft

Live Organisms present	Y
Oil-Like Present	N
Odor Present	N
Debris Present	N
Photo Numbers	Tablet #10 IMG-0256 + IMG-0257

Comments  
 2/8/2017: Homogenized into discrete sample VN58 - 10152016 - SED analyzed by Sofstins for Total Hg (1631) and Methyl Hg (1685); by AmecFW-Durham for D422 Grain Size and D2974 OC @ TBD

Also, composited into sample VN51 THRU 58

Checked 3/30/2017 KC





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>NU3</u>
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: <u>KC GW</u>
Date: <u>10/15/16</u>	Time: <u>1510</u>	Vessel: <u>Pamola</u>
Coordinates: Lat <u>44.53570983</u>	Long <u>-68.76178533</u>	Plan Volume: <u>—</u>
Sampling Station: <u>EC300C-sub / VN66</u>		
Weather: <u>SUNNY</u>	Winds: <u>—</u>	Waters: <u>—</u>
Traffic: <u>—</u>	Water Temp: <u>—</u>	
Measured Water Depth [NAVD88]: <u>30'</u>	Total Number of Deployments: <u>3</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Conditions: <u>—</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-35.13'</u>		
Study Depth (NAVD88): <u>-35.21'</u>		

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	0%	No recovery	
2	5% 10%	coarse gravel - TR mussel shells	
3	0%	No recovery	

Number of containers: <u>—</u>	<u>1 gal</u>	<u>—</u>	<u>—</u>	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type <u>Standard PONAR</u>
				Capacity <u>↓</u>

Live Organisms present	Y <u>(N)</u>	Comments
Oil-Like Present	Y <u>(N)</u>	
Odor Present	Y <u>(N)</u>	
Debris Present	Y <u>(N)</u>	
Photo Numbers		
<u>Tablet # 10</u>		
<u>IMG-0258</u>		

Checked  
3/30/2017  
KC

5



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: KC CW
Date: 10/17/16	Time: 16:58	Vessel: <i>Pamela</i>
Coordinates: Lat 44.56851267 Long - 68.78756700	Plan Volume: -	
Sampling Station: EC309A-int / VN67	Deploy No. -	Sub-tidal Location? Y (N)
Weather: SUNNY	Winds: 0.5 knots	Waters: -
	Traffic: NONE	Water Temp: -
Measured Water Depth (MWD): 24'	Core Penetration Length (ft.): 1.2'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 1.2'	
Mudline (Corrected Depth) @ NAVD88: -8.78'	Sample Length Retained (ft.): 1.2'	
Study Depth (NAVD88): -9.98'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.396	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id.#	Description
Top 0'		Silt. Non-coh. Non-plas. Very soft con. Scott. WC (saw dust size) <i>STRONG sulfur-odor</i>
0.15'		ORC particle WC. GLEY 12.5/N cob separation on grain interface → GLEY 1 2.5/N
		Silt. coh. low-plas. very soft con. TR sawdust size WC. TR scattered particle size WC. GLEY 1 3/10y Strong sulfur-like odor
Bottom 1.2'		

Number of containers: -	1 gal	-	-	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <u>Hard</u>	Vibracorer: P3 P5 VT6	Other	Slambar	4.0"	.50gal/ft
	<u>Push Corer</u>			3.5"	.33gal/ft

Live Organisms present	Y (N)	<b>Comments</b> Discrete Sample VN67-20172016-5 ED analyzed by Eurofins for Total Hg and MeHg; by AmecFW-Durham for D422 Grain Size and D2974 OC@TBD
Oil-Like Present	Y (N)	
Odor Present	(Y) N	
Debris Present	(Y) N	
Photo Numbers	Tablet #10 IMG-0296 + IMG-0297	

Also, composited into sample VN67THRU73

Checked 3/30/2017 KC



3



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: AquaSurvey	WO: 3 - Geophysical	Crew: KC CW
Date: 10/17/16	Time: 16:37	Vessel: Parula
Coordinates: Lat 44.516589733 Long -68.17842750	Plan Volume: —	
Sampling Station: EC308A-int/VN68	Deploy No. —	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: 5 knots	Waters: —
	Traffic: —	Water Temp: —
Measured Water Depth [MWD]: 3.5'	Core Penetration Length (ft.): 1'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): +- 0.9'	
Mudline (Corrected Depth) @ NAVD88: -7.88'	Sample Length Retained (ft.): +- 0.9'	
Study Depth (NAVD88): -8.88'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.297	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0'		Silt. Very soft con. Non-coh non-plas. Grey 2.5/N. Slight sulfur-like odor
0.9		
Bottom 1'		No recovery

Number of containers: —	2 gal	—	—	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft (Hard)	Vibracore: P3 P5 VT6	Other		4.0"	.50gal/ft
	Push Corer	Slambar		3.5"	.33gal/ft

Live Organisms present	Y (N)
Oil-Like Present	Y (N)
Odor Present	Y (N)
Debris Present	Y (N)
Photo Numbers	
Tablet #10	
IMG_0292	

Comments  
 Discrete Sample VN68-10172016-SED analyzed by Eurofins for Total Hg (1631) and MeHg (1632) by AmecFW-Durham for D422 Grain Size and D2974 OC@TBD

Also, composited into Sample VN67THRU73

Checked 4/3/2017 KC





amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

1-4

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: AquaSurvey	WO: <del>8 - Geophysical</del>	Crew: KC CW
Date: 10/17/16	Time: 16:16	Vessel: Pamola
Coordinates: Lat 44.56376667	Long -68.77342417	Plan Volume: -
Sampling Station: EC307A-INT/VNGA	Deploy No. -	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: 5 knots	Waters: -
Traffic: -	Water Temp: -	
Measured Water Depth (MWD): 2.2'	Core Penetration Length (ft.): 1.2'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 1.2'	
Mudline (Corrected Depth) @ NAVD88: -6.08'	Sample Length Retained (ft.): 1.2'	
Study Depth (NAVD88): -7.28'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.396	

GLEY!

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0		Silt w/ TR FN sand. coh. non-plas. -
0.1		Soft coh. TR TR TR particles size W <del>subtle</del> Strong sulfur like odor
		Silt. coh. non-
		Gradient non-plastic to brown GLEY 1/10
		Gradient soft coh to medium strength con
		Strong sulfur like odor
Bottom 1.2		

Number of containers: -	1 - gal	-	-	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	Hard	Vibracorer	P3 P5 VT6 Other	4.0"	50gal/ft
		Push Corer	Slambar	3.5"	.33gal/ft

Live Organisms present	Y	N
Oil-Like Present	Y	N
Odor Present	Y	N
Debris Present	Y	N
Photo Numbers	Tablet #10 IMG-0289	

Comments  
Discrete Sample VNGA-10172016-SE1 analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630); by AmecFW-Durham for D422 Grain Size and D2974 OC@TBD

Also, composited into Sample VNG7-THRU73

Checked  
4/13/2017  
K





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <b>MJB</b>
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: <b>KC CW</b>
Date: <b>10/2/16</b>	Time: <b>15:51</b>	Vessel: <b>Pamolan</b>
Coordinates: Lat <b>44.55879400</b> Long <b>-68.716998267</b>	Plan Volume: <b>---</b>	
Sampling Station: <b>EC306A-INT/VN70</b>	Deploy No. <b>---</b>	Sub-tidal Location? <b>Y (N)</b>
Weather: <b>SUNNY</b> Winds: <b>5 knots</b> Waters: <b>---</b>	Traffic: <b>---</b>	Water Temp: <b>---</b>
Measured Water Depth [MWD]: <b>4'</b>	Core Penetration Length (ft.): <b>1.3'</b>	
Correction to NAVD88 (+/- ft. from NAVD88): <b>-5.38'</b>	Recovered Core Length (ft.): <b>1.3'</b>	
Mudline (Corrected Depth) @ NAVD88: <b>-7.13'</b>	Sample Length Retained (ft.): <b>1.3'</b>	
Study Depth (NAVD88): <b>-8.43'</b>	Acceptable Core (80% recovery): <b>(Y) N</b>	
Required Penetration Length: <b>1'</b>	Core Volume Retained (gal.): <b>0.43</b>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id.#	Description
Top 0'		Silt. TRFN sand. Non-coh. Non-plas
0.4'		<sup>occ.</sup> <del>ABNT</del> sand dust size <sup>WC.</sup> soft con. Grey 3/104. Slight sulfur-like odor.
0.6'		<del>scattered</del> Silt. coh. Non-plas. Med-stiff con 5y 4/1. Slight sulfur-like odor. scattered sawdust size WC.
Bottom 1.3'		↓

Number of containers: <b>---</b>	<b>gal</b>	<b>---</b>	<b>---</b>	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <b>(Y)</b> Hard <b>(N)</b>	Vibra-corer: R3 P5 VT6	Other		4.0"	.50gal/ft
	Push Corer	Slam-bar		<b>3.5"</b>	<b>.33gal/ft</b>

Live Organisms present	<b>(Y) (N)</b>
Oil-Like Present	<b>(Y) (N)</b>
Odor Present	<b>(Y) (N)</b>
Debris Present	<b>(Y) (N)</b>
Photo Numbers	
<b>Tablet #10</b>	
<b>IMG-0283 +</b>	
<b>IMG-0287</b>	

**Comments**  
 Discrete sample VN70-10172016-SED analyzed by Eurofins for Total Hg and Methyl Hg by AmecFW-Durham for D422 Grain Size and D2974 OC@TBD

Also, composited into sample VN67 THRU 73

Checked  
 3/30/2017  
 KC





amec  
foster  
wheeler

## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MB</u>
Sub: <u>AquaSurvey</u>	WO: <del>3 Geophysical</del>	Crew: <u>KC CW</u>
Date: <u>10/17/16</u>	Time: <u>15:09</u>	Vessel: <u>Panola</u>
Coordinates: Lat <u>44.55325083</u> Long <u>-68.76904283</u>	Plan Volume: <u>-</u>	
Sampling Station: <u>EC305A-Int / VN71</u>	Deploy No. <u>-</u>	Sub-tidal Location? Y (N)
Weather: <u>SUNNY</u>	Winds: <u>5 knots</u>	Waters: <u>-</u>
	Traffic: <u>-</u>	Water Temp: <u>-</u>
Measured Water Depth (MWD): <u>3.5'</u>	Core Penetration Length (ft.): <u>1'</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Recovered Core Length (ft.): <u>1'</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-2.88'</u>	Sample Length Retained (ft.): <u>1'</u>	
Study Depth (NAVD88): <u>-3.88'</u>	Acceptable Core (80% recovery): <u>(Y) N</u>	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.33</u>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0'		Silt. TR FN sand, Non-coh. Non-plas. Very soft con. Moderate sulfur-like odor
0.2'		GLEYS 2.5/10Y. TR Fossil Fragments.
		Silt. coh. non-plas. soft con. Scattered sawdust size WC.
		GLEYS 2.5/N. Moderate sulfur-like odor
Bottom 1'		

Scatte  
sawdust  
WC.

Number of containers: <u>-</u>	<u>1 gal</u>	<u>-</u>	<u>-</u>	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <u>Soft</u> <u>Hard</u>	Vibracorer: P3 P5 VT6	Other		4.0"	.50gal/ft
	<u>Push Corer</u>	Slambar		<u>3.5"</u>	<u>.33gal/ft</u>

Live Organisms present	Y (N)	<p>Comments</p> <p>Sulfur-like odor</p> <p>Discrete Sample VN71 - 10172016 - SED analyzed by Eurofins for Total Hg and Methyl Hg; by AmecFur-Durham for D422 Grain Size and D2974 OC @ TBD</p>
Oil-Like Present	Y (N)	
Odor Present	<u>(Y)</u> (N)	
Debris Present	Y (N)	
Photo Numbers	<p>Tablet #10</p> <p>IMG-0279 +</p> <p>IMG-0280</p>	

Also, composited into Sample VN67-THRU73

Checked  
3/30/2017  
KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MS</u>
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: <u>KC AN</u>
Date: <u>10/15/16</u>	Time: <u>1522</u>	Vessel: <u>Pamda</u>
Coordinates: Lat <u>44.54007833</u> Long <u>-68.76587833</u>	Plan Volume: <u>---</u>	
Sampling Station: <u>EL301A-int / VN72</u>	Deploy No. <u>---</u>	Sub-tidal Location? <u>Y (N)</u>
Weather: <u>Sunny</u>	Winds: <u>---</u>	Waters: <u>---</u>
Traffic: <u>---</u>	Water Temp: <u>---</u>	
Measured Water Depth (MWD): <u>1'</u>	Core Penetration Length (ft.): <u>1.3'</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Recovered Core Length (ft.): <u>1.3'</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-6.38'</u>	Sample Length Retained (ft.): <u>1.3'</u>	
Study Depth (NAVD88): <u>-7.68'</u>	Acceptable Core (80% recovery): <u>(N) N</u>	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.43</u>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id.#	Description
Top 0'		Silt. Non-coh. Non-plas. very soft con.
0.4'		GLEY 10Y/2-10Y 2.5/10Y consistent through TR WC particles) TR saw dust.
		Silt. TR FN sand, coh. low-plas. very soft con. GLEY 2.5/10Y. scat saw dust WC.
Bottom 1.3'		same. Occ. saw dust WC.

Number of containers: <u>---</u>	<u>1 gal</u>	<u>---</u>	<u>---</u>	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <u>Hard</u>	Vibracorer: P3 P5 VT6 Other			4.0"	.50gal/ft
	<u>Push Corer</u>			3.5"	.33gal/ft

Live Organisms present	Y <u>(N)</u>
Oil-Like Present	Y <u>(N)</u>
Odor Present	Y <u>(N)</u>
Debris Present	Y <u>(N)</u>
Photo Numbers	
<u>Tablet #10</u>	
<u>IMG-0259 +</u>	
<u>IMG-0260</u>	

Comments

Sulfur-like

Discrete Sample VN72-10152016-SED analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630); by AmecFW-Durham for D422 Grain Size and D2974 OC @ TBD

Also, composited into sample W67-THRU73

Checked 3/30/2017  
KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MB</u>
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: <u>KC CW</u>
Date: <u>10/15/16</u>	Time: <u>1437</u>	Vessel: <u>Pamola</u>
Coordinates: Lat <u>44.53481983</u> Long <u>-68.76235267</u>	Plan Volume: <u>1 gallon</u>	
Sampling Station: <u>EC300A-INT / VN73</u>	Deploy No. <u>2</u>	Sub-tidal Location? <u>Y</u> (N)
Weather: <u>SVNNY</u>	Winds: <u>-</u>	Waters: <u>-</u>
Traffic: <u>-</u>	Water Temp: <u>-</u>	
Measured Water Depth (MWD): <u>1.6'</u>	Core Penetration Length (ft.): <u>1.5'</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Recovered Core Length (ft.): <u>1.5'</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-4.48'</u>	Sample Length Retained (ft.): <u>1.5'</u>	
Study Depth (NAVD88): <u>-5.98'</u>	Acceptable Core (80% recovery): <u>(Y) N</u>	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.495</u>	

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0'		Silt. non-coh. non-plus, very soft con. strong sulfur-like odor. 7.5YR 2.5/1 and 2.5/1
0.75'		same. 2.5Y 4/1
1.2		
Bottom 1.5		Silt. coh. low-plus. soft con. TR WC saw dust size. TR twigs. strong sulfur-like odor.

Number of containers: <u>-</u>	<u>1-gal</u>	<u>-</u>	<u>-</u>	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <u>Soft</u> <u>Hard</u>	Vibracorer: P3 P5 VT6 Other			4.0"	.50gal/ft
	Push Corer			Slambar	<u>.33gal/ft</u>

Live Organisms present <u>Y</u> (N)	<p>Comments</p> <p>Discrete Sample VN73-10152016-SED analyzed by Eurofins for total Hg (1631) and Methyl Hg (1630); by Amec Foster Wheeler for D422 Grain Size and D2974 @ TBD</p>
Oil-Like Present <u>Y</u> (N)	
Odor Present <u>(Y)</u> (N)	
Debris Present <u>(Y)</u> (N)	
Photo Numbers	
<p>Tablet #</p> <p>IMG-0254 +</p> <p>IMG-0255</p>	

Also, composited into sample VN67THRU73

Checked  
5/1/2017  
KC



Penobscot River Mercury Study - Phase III Engineering Evaluation

VN74

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: AquaSurvey	WO: <del>3 Geophysical</del>	Crew: KC CW
Date: 10/17/16	Time: 13:23	Vessel: Pamela
Coordinates: Lat 44.55826933	Long - 128.77221033	Plan Volume: -
Sampling Station: EC303B-int / VN74	Deploy No. -	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: ~5 knot	Waters: -
	Traffic: None	Water Temp: -
Measured Water Depth (MWD): 7'	Core Penetration Length (ft.): 0.5'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 6.5'	
Mudline (Corrected Depth) @ NAVD88: -0.88'	Sample Length Retained (ft.): 0.5'	
Study Depth (NAVD88): -1.38'	Acceptable Core (80% recovery): Y (N)	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.165	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0'		Silt, TR med. gravel, non-coh non-plas, very soft con.
0.33		GLEY 2.5 / N. sand. shell fragments, IR twigs. slight sulfur-like odor
		PRDM silt, TR FN sand, TR med. and FN gravel, coh, non-plas, soft con. TR pine needles.
		GLEY 1 @ 10% slight sulfur-like odor
Bottom 0.5'		

Number of containers: -	1 gal	-	-	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	Hard	Vibrator: P3 P5 VT6	Other	4.0"	.50gal/ft
	Push Corer	Slambar		3.5"	.33gal/ft

Live Organisms present	Y (N)	Comments slight TR twigs + pine needles VN74-10172016 SED (Discrete sample) analyzed by Eurofins for Total Hg and Methyl; by Alpha for TOC
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	Y (N)	
Photo Numbers	Tablet # 10 IMG-0266	

Also, composited into sample VN74THRU80

Checked  
3/30/2017  
KC





amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

VN75

5

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: KC CN
Date: 10/17/16	Time: 13:16	Vessel: Pamela
Coordinates: Lat 44.55777383	Long -68.77401367	Plan Volume: -
Sampling Station: EC303C-Sub/VN75	Deploy No. -	Sub-tidal Location: (Y) N
Weather: Sunny	Winds: $\approx$ 5 knots	Waters: -
	Traffic: None	Water Temp: -
Measured Water Depth (MWD): 8.2'	Core Penetration Length (ft.): 0.9'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.9'	
Mudline (Corrected Depth) @ NAVD88: -1.83'	Sample Length Retained (ft.): 0.9'	
Study Depth (NAVD88): -2.73'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 11	Core Volume Retained (gal.): 0.297	
All Length Measurements are in Decimal Feet		
Sample Interval (ft.)	Sample ID #	Description
Top 0		Silty. TR FN sand. Non-coh. Non-plas. Very soft con. GLEY 3/104
0.2		Slight sulfur-like odor.
		Silt. coh. non-plas. soft con. GLEY 3/104. TR sand with size WC Moderate sulfur-like odor
Bottom 0.91		
Number of containers: -	gal -	Core Volumes
Type of container: bucket	liner bag	Nominal core-barrel diameter
Liner Type: Soft <u>Hard</u>	Vibracorer: P3 P5 VT6 Other	EST. Volume
	<u>Push Corer</u>	Slambar
		4.0" .50gal/ft
		3.5" .33gal/ft
Live Organisms present	Y (N)	Comments
Oil-Like Present	X (N)	
Odor Present	(Y) (N)	
Debris Present	(Y) (N)	
Photo Numbers	Slight to mod. TR WC VN75-10172016 - JED (Discrete Sample) analyzed by Eurofins for Total Hg and MeHg; by Alpha for TOC (1631) (1630)	
Tablet #10 IMG-0267		

Also, composite into sample VN74THRU80

Checked  
3/30/2017  
KC



4.



amec  
foster  
wheeler

### Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB																								
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: KC CW																								
Date: 10/17/16		Time: 13:13																								
Vessel: Puma		Plan Volume: -																								
Coordinates: Lat 44.55761900	Long -68.77526717	Sub-tidal Location? Y (N)																								
Sampling Station: EC303A-int / VN76	Deploy No. -																									
Weather: Sunny	Winds: ~5 knots	Waters: -																								
Traffic: -	Water Temp: -																									
Measured Water Depth (MVD): 7'	Core Penetration Length (ft.): 0.7'																									
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.7'																									
Mudline (Corrected Depth) @ NAVD88: -0.65'	Sample Length Retained (ft.): 0.7'																									
Study Depth (NAVD88): -1.33'	Acceptable Core (80% recovery): <del>Y</del> (N)																									
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.23																									
All Length Measurements are in Decimal Feet																										
Sample Interval (ft.)	Sample Id #	Description																								
Top	0	Silt. non-coh. non-plas. very soft con.																								
0.1		TR shell fragments - clay ± 2.5/100																								
		Silt. TR clay. coh. non-plas. soft coh. 2.5 YR 2/1																								
Bottom	0.7																									
<table border="1"> <tr> <td>Number of containers: -</td> <td>1 gal</td> <td>-</td> <td>-</td> <td colspan="2">Core Volumes</td> </tr> <tr> <td>Type of container: bucket</td> <td>liner bag</td> <td>jar</td> <td>other</td> <td>Nominal core-barrel diameter</td> <td>EST. Volume</td> </tr> <tr> <td>Liner Type: Soft Hard</td> <td>Vibrocorer</td> <td>P3 P5 VT6</td> <td>Other</td> <td>4.0"</td> <td>.50gal/ft</td> </tr> <tr> <td></td> <td>Push Corer</td> <td>Slambar</td> <td></td> <td>3.5"</td> <td>.33gal/ft</td> </tr> </table>			Number of containers: -	1 gal	-	-	Core Volumes		Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume	Liner Type: Soft Hard	Vibrocorer	P3 P5 VT6	Other	4.0"	.50gal/ft		Push Corer	Slambar		3.5"	.33gal/ft
Number of containers: -	1 gal	-	-	Core Volumes																						
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume																					
Liner Type: Soft Hard	Vibrocorer	P3 P5 VT6	Other	4.0"	.50gal/ft																					
	Push Corer	Slambar		3.5"	.33gal/ft																					
Live Organisms present	Y (N)	Comments slight TR shell frag. VN76-10/17/2016-SED (Discrete Sample) analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630); by Alpha for TOC Lloyd-Kahn																								
Oil-Like Present	X (N)																									
Odor Present	X (N)																									
Debris Present	Y (N)																									
Photo Numbers	Table # 10 IMG-0268 + IMG-0269																									

slight silt/clay-like odor.

Also, composited into sample VN74 THRU 80

Checked  
3/30/2017  
KC



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amec  
foster  
wheeler

### Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MMB</u>
Sub: <u>AquaSurvey</u>	WO: <del>Geophysical</del>	Crew: <u>KC CW</u>
Date: <u>10/17/16</u>	Time: <u>12:59</u>	Vessel: <u>Pamola</u>
Coordinates: Lat <u>44.55328450</u> Long <u>-68.77062700</u>	Plan Volume: <u>—</u>	
Sampling Station: <u>EG302B-int/VN77</u>	Deploy No. <u>—</u>	Sub-tidal Location? Y (N)
Weather: <u>Sunny</u>	Winds: <u>~5 knots</u>	Waters: <u>—</u>
Traffic: <u>—</u>	Water Temp: <u>—</u>	
Measured Water Depth (MWD): <u>6'</u>	Core Penetration Length (ft.): <u>0.4'</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Recovered Core Length (ft.): <u>0.4'</u>	
Mudline (Corrected Depth) @ NAVD88: <u>1.12'</u>	Sample Length Retained (ft.): <u>0.4'</u>	
Study Depth (NAVD88): <u>0.72'</u>	Acceptable Core (80% recovery): Y (N)	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.13</u>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0		Silt. Non-coh. FR gravel-shell frag
		non-plastic. Very soft con.
		slight sulfur-like odor. 7.5% 2.5%
Bottom 0.4'		

scatter shell frag  
2.5%

Number of containers: <u>—</u>	<u>1 gal</u>	<u>—</u>	<u>—</u>	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft (Hard)	Vibracorer: P3 P5 VT6 Other	Push Corer	Siambar	4.0"	.50gal/ft
				3.5"	.33gal/ft

Live Organisms present	Y (N)	Comments
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	Y (N)	
Photo Numbers	<p>Tablet #10 IMG-0272 to IMG-0273</p> <p>VN77-10172016-JED (Discrete Sample) analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630); by Alpha for TOC Lloyd-Kahn</p>	

Also, composited into VN74 THRU 80 Sample

Checked 3/30/2017 KC



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wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: AquaSurvey	WO: <del>Geophysical</del>	Crew: KC CW
Date: 10/17/16	Time: 1308	Vessel: Pamola
Coordinates: Lat 44.55297883	Long -68.77192100	Plan Volume: -
Sampling Station: EC302G Sub/VN78	Deploy No. -	Sub-tidal Location? <input checked="" type="radio"/> Y <input type="radio"/> N
Weather: Sunny	Winds: ~5 knots	Waters: -
	Traffic: -	Water Temp: -
Measured Water Depth (MWD): 8'	Core Penetration Length (ft.): 0.7'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.7'	
Mudline (Corrected Depth) @ NAVD88: -1.13'	Sample Length Retained (ft.): 0.7'	
Study Depth (NAVD88): -1.83'	Acceptable Core (80% recovery): <input checked="" type="radio"/> Y <input type="radio"/> N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.23	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id.#	Description
Top 0'		silt. TR FN sand. Gradient consistency: non-u to con. non-plas. soft con. Throughout Moderate siltier-like odor. GRLEY 2.5/104. TR shell fragments Throughout.
Bottom 0.7'		

Number of containers: -	1 gal	-	-	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <input checked="" type="radio"/> Hard	Vibracorer: P3 P5 VT6 Other	Push Corer	Slambar	4.0"	.50gal/ft
				3.5"	.33gal/ft

Live Organisms present	<input checked="" type="radio"/> Y <input type="radio"/> N
Oil-Like Present	<input checked="" type="radio"/> Y <input type="radio"/> N
Odor Present	<input checked="" type="radio"/> Y <input type="radio"/> N
Debris Present	<input checked="" type="radio"/> Y <input type="radio"/> N
Photo Numbers	Tablet #10 IMG-0270

Comments  
 VN78-10172016-JED (Discrete Sample) analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630);  
 by Alpha TOC Lloyd-Kalsh  
 TR shell frag  
 Also, composited into sample VN74 THRU60

Checked  
3/30/2017  
KC



(2)



amec  
foster  
wheeler

### Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: KC CW
Date: 10/17/16		Time: 19:03
Vessel: Pamola	Plan Volume: —	
Coordinates: Lat 44.553018700	Long -68.77449150	Sub-tidal Location? Y (N)
Sampling Station: EC302A-int/VN79	Deploy No. —	
Weather: Sunny	Winds: ~5 knot	Waters: —
Traffic: —	Water Temp: —	
Measured Water Depth (MWD): 8'	Core Penetration Length (ft.): 0.7'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Recovered Core Length (ft.): 0.7'	
Mudline (Corrected Depth) @ NAVD88: -1.13'	Sample Length Retained (ft.): 0.7'	
Study Depth (NAVD88): -1.83'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.23	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample ID #	Description
Top 0'		Silt, TR FN sand, Gradient consistency: Non-coh to coh. Non-plas. soft coh thro Moderate, sulfur-like odor. GLEY 2.5/10Y TR shell fragments throughout. TR twigs
Bottom 0.7'		

Number of containers: —	1 gal	—	—	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard	Vibracorer: R3 P5 VT6	Other	4.0"	.50gal/ft	
	Push Corer	Slambar	3.5"	.33gal/ft	

Live Organisms present	Y	(N)
Oil-Like Present	(Y)	(N)
Odor Present	(Y)	(N)
Debris Present	(Y)	(N)
Photo Numbers	Tablet #10 IMG_0271	

Comments  
 VN79-10172016 - JED (discrete sample) analyzed by Eurofins for Total Hg (1631) and Methyl Hg (1630); by Alpha TOC Lloyd's Kahn  
 Also, composited into sample VN74TRU80

Checked  
5/30/2017  
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Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>NJB</u>
Sub: <del>AquaSurvey</del>	WC: <del>Geophysical</del>	Crew: <u>KC CW</u>
Date: <u>10/17/16</u>	Time: <u>14:29</u>	Vessel: <u>Pamola</u>
Coordinates: Lat <u>44.54162050</u> Long <u>-68.76986967</u>	Plan Volume: <u>---</u>	
Sampling Station: <u>EC304A-int VN80</u>	Deploy No. <u>---</u>	Sub-tidal Location? Y <input checked="" type="radio"/> N
Weather: <u>SUNNY</u> Winds: <u>0-5 knots</u> Waters: <u>---</u>	Traffic: <u>---</u>	Water Temp: <u>---</u>
Measured Water Depth (MWD): <u>3.5'</u>	Core Penetration Length (ft.): <u>0.85</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Recovered Core Length (ft.): <u>0.85</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-1.88'</u>	Sample Length Retained (ft.): <u>0.85</u>	
Study Depth (NAVD88): <u>-2.73'</u>	Acceptable Core (80% recovery): <input checked="" type="radio"/> Y <input type="radio"/> N	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.28</u>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.1		Silt. TR FN Sand. NON-coh. Non-plas. Very soft con.
		GLEY 2.5/10Y. Slight sulfur-like odor 1 bloodworm.
0.5'		↓ Silt. TR FN Sand. coh. Non-plas. Soft con. GLEY 2.5/10Y. Moderate sulfur-like od
Bottom 0.85'		TR sand/water WC. 1 bloodworm

Number of containers: <u>---</u>	gal. <u>---</u>	Core Volumes
Type of container: bucket <input checked="" type="radio"/> liner bag <input type="radio"/> jar <input type="radio"/> other <input type="radio"/>	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <input checked="" type="radio"/> Hard <input type="radio"/>	Vibracorer: P3 P5 VT6 Other <input type="radio"/>	4.0" .50gal/ft
	Push Core <input checked="" type="radio"/> Slambar <input type="radio"/>	3.5" .33gal/ft

Live Organisms present <input checked="" type="radio"/> Y <input type="radio"/> N	Comments <u>bloodworm</u> <u>mod/slight WC</u>
Oil-Like Present <input type="radio"/> Y <input checked="" type="radio"/> N	
Odor Present <input checked="" type="radio"/> Y <input type="radio"/> N	
Debris Present <input checked="" type="radio"/> Y <input type="radio"/> N	
Photo Numbers <u>Tablet # 10</u> <u>IMG-0274 to</u> <u>IMG-0276</u>	

VN80-10172016 - JED (Discrete Sample) analyzed by Eurofins for Total Hg and Methyl Hg; by Amec FW-Durham for D422 Grain Size and D2974 OC @ TBD; by Alpha for TOC Lloyd-Kahn

Also, composited into sample VN74 THRU 80

Checked 3/30/2017 KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: L. Casey  
 Sub: ~~AquaSurvey~~ WO: ~~3 - Geophysical~~ Crew: ~~The Coast~~ MM, CW  
 Date: 10/05/2016 Time: 10:22 Vessel: Mudpuppy  
 Coordinates: Lat 44.58152 Long -68.8206 Plan Volume: 1 gallon  
 Sampling Station: 22' Hole

Weather: — Winds: — Waters: — Traffic: — Water Temp: —  
 Measured Water Depth [NAVD88]: — Total Number of Deployments: 1  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: -2.14'  
 Study Depth (NAVD88): -2.14'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
	<u>~1/2g</u>	<u>ABOUT Mussels; <sup>same</sup> Coarse Gr; TR FN Sands; some silt</u>	
		<u>7.5KR 2.5/1</u>	

Number of containers: 1 - 5g — — — Grab Equipment: Standard Ponar  
 Type of container: bucket ✓ liner bag — jar — other — Sampler Type Standard Ponar  
 Capacity —

Live Organisms present (Y) N  
 Oil-Like Present Y (N)  
 Odor Present (Y) N  
 Debris Present Y (N)  
 Photo Numbers N/A  
 Comments organic (slight)  
Collected 10/05/2016  
Material not retained

Checked  
4/28/2017  
KC



amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: KC w MM
Date: 10/18/11	Time: 0943	Vessel: Ramona
Coordinates: Lat 44.58989200 Long -68.82497967	Plan Volume: —	
Sampling Station: BU300-SUB/BU53	Deploy No. —	Sub-tidal Location <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Weather: Cloudy	Winds: 0-knots	Waters: calm
	Traffic: None	Water Temp: —
Measured Water Depth (MWD): 9'	Core Penetration Length (ft.): 0.9'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 0.9'	
Mudline (Corrected Depth) @ NAVD88: -8.89'	Sample Length Retained (ft.): 0.9'	
Study Depth (NAVD88): -9.79'	Acceptable Core (80% recovery): <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.297	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0'		SIH. TR FN sand. Non-coh. Non-plas. Very soft coh. Scattered sawdust size WC Moderate sulfur-like odor.
0.4'		↓ 7.5YR 2.5/
		SIH. TR FN sand. coh. low plas. med. stiff density. GLEY 4/104. TR sawdust size WC. Moderate sulfur-like odor.
		↓
Bottom 0.9'		

Number of containers: —	1-gal —	—	—	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <input checked="" type="checkbox"/> Hard	Vibracorer: P3 P5 VT6	Other		4.0"	.50gal/ft
	Push Corer	Slambar		3.5"	.33gal/ft

Live Organisms present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	moderate WC	Comments
Oil-Like Present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N		
Odor Present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N		
Debris Present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N		
Photo Numbers	Tablet 12 IMG_0041		

Checked  
3/28/2017  
KC





amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: KC CW MM
Date: 16/18/16	Time: 1035	Vessel: Pamola
Coordinates: Lat 49.58300950	Long -68.81564250	Plan Volume: -
Sampling Station: BU303-sub / BU54		
Weather: cloudy	Winds: 5 knots	Waters: calm
Traffic: None	Water Temp: -	
Measured Water Depth [NAVD88]: 29'	Total Number of Deployments: 3	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Conditions: -	
Mudline (Corrected Depth) @ NAVD88: -23.39'		
Study Depth (NAVD88): -23.43'		

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	5%	Dusting of silt + WC and FN sand.	all silt + WC all particles re BLEY 1 4/N
2	0%	No closure	
3	1%	TR WC	
4 MB			

Number of containers: 1-5 gal	-	-	-	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type Standard PONAR
Live Organisms present	Y	N		Comments
Oil-Like Present	Y	N		
Odor Present	Y	N		
Debris Present	Y	N		
Photo Numbers	Tablet #12 IMG-0043			

Checked  
3/28/2017  
KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine      Project No. 3616166052      Logger: MJ3  
 Sub: ~~AquaSurvey~~      ~~WO-2 Geophysical~~      Crew: KC CW MM  
 Date: 10/18/16      Time: 1125      Vessel: Pamela  
 Coordinates: Lat 44.5838383      Long -68.8207860      Plan Volume: -  
 Sampling Station: BU305 - sub / BU56  
 Weather: Cloudy      Winds: 0-5 knots      Waters: calm      Traffic: None      Water Temp: -  
 Measured Water Depth [NAVD88]: 39'      Total Number of Deployments: 5  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89'      Conditions: -  
 Mudline (Corrected Depth) @ NAVD88: -30.39'  
 Study Depth (NAVD88): -30.38'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	0%	No collection	
2	<1%	FN Sand + WC	
3	2%	No collection	

Number of containers: 1-5gal      -      -      -  
 Type of container: bucket      liner bag      jar      other      Capacity: Grab Equipment Stand Level Pond

Live Organisms present      Y  N  
 Oil-Like Present      Y  N  
 Odor Present      Y  N  
 Debris Present      Y  N

Photo Numbers  
Tablet #12  
IMG\_0048

Comments  
"23 foot hole"

Checked  
 3/28/2017  
 KC



amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

1530k. <sup>si</sup>  
MIB compl LE  
1537 h MIB  
rgsts Tyleno  
TRANS Pro

Owner: USDC, District of Maine Project No. 3616166052 Logger: C PLATT  
 Sub: AquaSurvey ~~Oris ENTERPRISES~~ SVO. 3 - Geophysical Crew: KB  
 Date: 7 Oct 2016 Time: 1545 Vessel: FIRST TEAM  
 Coordinates: Lat 44.45299333 Long -68.79203850 Plan Volume: 2g  
 Sampling Station: CJ-INT-4  
 Weather: Sunny 70s Winds: 0 Waters: 0 Traffic: 0 Water Temp: 58F  
 Measured Water Depth (NAVD88): 7 Total Number of Deployments: 3  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.36'  
 Mudline (Corrected Depth) @ NAVD88: -2.28'  
 Study Depth (NAVD88): -2.36'  
 Conditions: Intertidal, cobble + rockweed observed thru water column

All Recovered Quantities are in Estimated Gallons - Percent

Deployment	Recovery	Description	Sample ID
01	0%	Rock in Jaw	None
02	10%	Cobble	None
03	0%	Rock Weed	None

2 gal

Number of containers: ~~2~~ 1 Grab Equipment  
 Type of container: bucket liner bag jar other Sampler Type Ponar  
 Capacity Large (Standard)

Live Organisms present Y (N)  
 Oil-Like Present Y (N)  
 Odor Present Y (N)  
 Debris Present Y (N)

Comments  
 Only Cobble recovered. No sample Retained.

Photo Numbers  
 Tablet #10  
 IMG\_0137

Checked  
 3/31/2017  
 KC





amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

1630 MB  
remains  
sitting.

Owner: USDC, District of Maine	Project No. 3616166052	Logger: C. Platt
Sub: AquaSurvey <del>OTIS Enterprises</del> CMO: 3 - Geophysical		Crew: KB
Date: 7 Oct 16	Time: 1630h.	Vessel: First Team
Coordinates: Lat 44.46442	Long -68.7872	Plan Volume: -
Sampling Station: CT-INT-5		
Weather: Sunny 70s	Winds: 0	Waters: 0
	Traffic: 0	Water Temp: 58F
Measured Water Depth (NAVD88): 8		Total Number of Deployments: 3
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'		Conditions: Cobble, hard bottom w/ boulders
Mudline (Corrected Depth) @ NAVD88: -3.63'		
Study Depth (NAVD88): -3.71'		

LAT/LON

All Recovered Quantities are in Estimated Gallons Percent

Deployment	Recovery	Description	Sample ID
01	0%	2 shells	
02	0%	Rockweed	
03	100%	Cobble	

Number of containers:	0	—	—	—	Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type Panar
					Capacity Large (Standard)

Live Organisms present	(Y) N	Pariwinkle 2 No sample recovered.
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	Y (N)	
Photo Numbers	None	

Checked  
3/31/2017  
KC





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wheeler

## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>K. Casey</u>
Sub: <del>AquaSurvey</del>	WD: <del>Geophysical</del>	Crew: <del>The Bang</del> <u>MM, CW, KB, MJ</u>
Date: <u>10/08/2016</u>	Time: <u>10:57</u>	Vessel: <u>Pamola</u>
Coordinates: Lat <u>No GPS Point</u>	Long <u>No GPS Point</u>	Plan Volume: <u>—</u>
Sampling Station: <u>East Penob Buck Mill</u>		
Weather: <u>Sunny</u>	Winds: <u>5 Knt SE</u>	Waters: <u>Calm</u>
Traffic: <u>—</u>	Water Temp: <u>—</u>	
Measured Water Depth [NAVD88]: <u>—</u>	Total Number of Deployments: <u>2</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.89'</u>	Conditions: <u>—</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-1.32'</u>		
Study Depth (NAVD88): <u>-1.32'</u>		

**All Recovered Quantities are in Estimated Gallons**

Deployment	Recovery	Description	Sample ID
1-5g Bucket	~3/4g	ABNT Wood chip, PRDM FN sand, TR silt; 5Y 4/2;	
	0 ~ 1/2g	water	
1-5g Bucket			

Number of containers: <u>2-5g</u>	<u>—</u>	<u>—</u>	<u>—</u>	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type <u>Standard Penar</u>
				Capacity

Live Organisms present	Y N	Comments <u>ABNT wood chip</u> <u>Collected</u>
Oil-Like Present	Y <u>(N)</u>	
Odor Present	Y <u>(N)</u>	
Debris Present	<u>(Y)</u> N	
Photo Numbers	<u>N/A</u>	

Checked  
5/1/2017  
KC



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# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: K. Bavor
Sub: AquaSurvey	WO: <del>8 - Geophysical</del>	Crew: C. Platt, K. Casey
Date: 10/8/2016	Time: 1604	Vessel: Fist Team
Coordinates: Lat 44.47328683° N	Long 68.80009533° W	Plan Volume: 1-2g
Sampling Station: <del>SUR 5</del> FPC-1 / FPC01		
Weather: OVERCAST	Winds: SW 10-15 KTS	Waters: 2-3' surge
Traffic: 0	Water Temp: 80-60 °F	
Measured Water Depth (NAVD88): 86'	Total Number of Deployments: 3	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Conditions: Thawing portion of Fort Point Cove	
Mudline (Corrected Depth) @ NAVD88: -81.38'		
Study Depth (NAVD88): -81.61'		

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	30%	0-3" - coarse sand, shell fragments 3-3" - med - coarse sand - silty silt BLEY 1 8/107	
2	10%	Same, with Brittle Star + sponge	
3	1%	Coarse sand and gravel rock in jaw	
2			

Number of containers: 2 gal	—	←	←	Grab Equipment	standard
Type of container: bucket	liner bag	jar	other	Sampler Type	PowAR EG
				Capacity	1.5 gal
Live Organisms present	<input checked="" type="radio"/> N	0.3" POLYCHAETES, AMPHAROD, Comments MAHOGANY CLAM, Brittle Star + sponge			
Oil-Like Present	Y <input checked="" type="radio"/> N				
Odor Present	Y <input checked="" type="radio"/> N				
Debris Present	Y <input checked="" type="radio"/> N				
Photo Numbers	N/A				

Checked  
3/30/2017  
KC





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# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>CP</u>
Sub: <u>AquaSurvey</u>	WO: <del>3-Geophysical</del>	Crew: <u>KE KCB</u>
Date: <u>10/8/2016</u>	Time: <u>1630</u>	Vessel: <u>First Team</u>
Coordinates: Lat <u>44.48288</u>	Long <u>-68.7956</u>	Plan Volume: <u>1-2g</u>
Sampling Station: <u>FPC 2 / FPC02</u>		
Weather: <u>Overcast</u>	Winds: <u>SW 10-20 Kts</u>	Waters: <u>~1' surf</u>
Traffic: <u>0</u>	Water Temp: <u>60°F</u>	
Measured Water Depth (NAVD88): <u>52'</u>	Total Number of Deployments: <u>2</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Conditions: <u>-</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-67.40'</u>		
Study Depth (NAVD88): <u>-68.00'</u>		

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
<u>1</u>	<u>5%</u>	<u>PRDA silt, possible intermingled wood chips</u> <u>Gley 1 3/10'</u>	
<u>2</u>	<u>80%</u>	<u>FN Sandy Silt, Gray, same</u> <u>surface 2.5' 4/3 over 5' 4/3</u>	
<u>KEC B</u>			

Number of containers: <u>2gal</u>	<u>—</u>	<u>—</u>	<u>—</u>	Grab Equipment <u>Standard</u>
Type of container: <u>bucket</u>	<u>liner bag</u>	<u>jar</u>	<u>other</u>	Sampler Type <u>PONAR</u>
				Capacity <u>1.5 gal</u>
Live Organisms present <input checked="" type="checkbox"/> <u>N</u>	<u>Bloodworms</u> <u>Comments</u>			
Oil-Like Present <u>Y</u> <input checked="" type="checkbox"/>				
Odor Present <u>Y</u> <input checked="" type="checkbox"/>				
Debris Present <u>Y</u> <input checked="" type="checkbox"/>				
Photo Numbers	<u>N/A</u>			

Checked  
3/30/2017  
KEC





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# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine  
 Sub: ~~AquaSurvey~~  
 Project No. 3616166052  
 WO: ~~8 - Geophysical~~  
 Date: 10/18/2016  
 Time: 1700 26:50  
 Logger: KC  
 Crew: CP + KB  
 Vessel: First A&E Team  
 Coordinates: Lat 44.49107950° N Long 68.78135017° W  
 Plan Volume: 1-2g  
 Sampling Station: FPC-3 / FPC03  
 Weather: Overcast Winds: SW 10-15kts Waters: 1-2 ft swell, chop Traffic: None Water Temp: 50-60°F  
 Measured Water Depth (NAVD88): 60'  
 Total Number of Deployments: 6  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38'  
 Conditions: -  
 Mudline (Corrected Depth) @ NAVD88: -75.38'  
 Study Depth (NAVD88): -75.98'

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1, 2, 3, 4		NO TRIP	
5		0.01" REPLACE PIN w/ ZIP TIE 80% BROWN 2.5Y 4/3 C CHIPS 1/8" x 1/4" INTERMEDIATE IN SILT-GLY 3/10 Y BLACKISH BROWN - SILT, SOFT COHESIVE, NON-PLASTIC, LEAF TWIGS	
6	50%	SAME AS #5	
KCP			

Number of containers: 1-2 gallon  
 Grab Equipment: standard  
 Sampler Type: PONAR LG.  
 Capacity: 1.5 gal

Type of container: bucket  
 Live Organisms present:  Y  N  
 Oil-Like Present:  Y  N  
 Odor Present:  Y  N  
 Debris Present:  Y  N  
 Photo Numbers: N/A  
 Comments: 1740 RIVER WATER COLLECTION  
 1755 - RETURNING TO BOANS PORT

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3/30/2017  
KC



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# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MKB
Sub: AquaSurvey Otis Enterprises WO: 3 - Geophysical		Crew: KCB, CTP
Date: 10/7/16	Time: 11:52	Vessel: FirstTeam
Coordinates: Lat 44.34948683 N Long -68.82319967 W	Plan Volume: N/A	
Sampling Station: <del>CJ</del> HB-01	PAGE 1 of 2	
Weather: Sunny	Winds: 0	Waters: calm
	Traffic: None	Water Temp: 58F
Measured Water Depth (NAVD88): 62'	Total Number of Deployments: 7	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Conditions: -	
Mudline (Corrected Depth) @ NAVD88: -62.38'		
Study Depth (NAVD88): -62.59'		

All Recovered Quantities are in Estimated Gallons Percent

Deployment	Recovery	Description	Sample ID
1	28%	<sup>(Polychaete)</sup> Peeking for crust + gyttia (7.5YR 4/2) coarse sand	
2	0	No collection	
3	5%	coarse sand + shells	
4	0%	No closure	
5	5%	coarse sand	
6	15%	coarse sand	

Number of containers: 2	—	—	—	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type Penar Capacity large standard

Live Organisms present	<input checked="" type="radio"/> Y <input type="radio"/> N	Comments  Material not retained
Oil-Like Present	<input type="radio"/> Y <input checked="" type="radio"/> N	
Odor Present	<input type="radio"/> Y <input checked="" type="radio"/> N	
Debris Present	<input type="radio"/> Y <input checked="" type="radio"/> N	
Photo Numbers	Tablet #10 IMG-0098	

Checked  
5/1/2017  
KC











## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey	
Sub:	WO:	Crew: MM, CW	
	Date: 10/7/16	Time: 16:00	Vessel: Mud Puppy
Coordinates: Lat	44.57329	Long	-68.8552
		Plan Volume:	1 Gallon
Sampling Station: MM100-sub	Deploy No. 1	Sub-tidal Location?	<input checked="" type="radio"/> Y <input type="radio"/> N
Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm	Traffic: None
			Water Temp: 58°F

Measured Water Depth [NAVD88]: <del>—</del>	Core Penetration Length (ft.): 0.6
Correction to NAVD88 (+/- ft. from NAVD88): -5.89	Recovered Core Length (ft.): 0.6
Mudline (Corrected Depth) @ NAVD88: 5.41'	Sample Length Retained (ft.): <del>—</del>
Study Depth (-NAVD88): 4.61'	Acceptable Core (80% recovery): Yes
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.20

**All Length Measurements are in Decimal Feet**

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, moderate sand, non cohesive, non plasticity, very soft consistency, black (5Y 2.5/1)
0.4		OL: Organic Silt, trace fine sands, cohesive, low plasticity, soft consistency, trace to some twigs, trace sulfur like odor, wet, black (10YR 2/1)
Bottom 0.8		

Number of containers:	<del>—</del>	<del>—</del>	<del>—</del>	<del>—</del>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<input checked="" type="radio"/> Hard	Vibracorer:			4.0"	.50gal/ft
		<input checked="" type="radio"/> Push Corer			<input checked="" type="radio"/> 3.5"	.33gal/ft

Live Organisms present	Y <input checked="" type="radio"/> N	<p style="text-align: center;"><b>Comments</b></p> <p>Trace sulfur like odor</p> <p>Trace to some twigs</p> <p>Material not retained</p>
Oil-Like Present	Y <input checked="" type="radio"/> N	
Odor Present	<input checked="" type="radio"/> Y <input type="radio"/> N	
Debris Present	<input checked="" type="radio"/> Y <input type="radio"/> N	
<b>Photo Numbers</b>	N/A	

Checked  
4/27/2017





## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin
Sub:	WO:	Crew: KC, CW
Date: 10/7/16	Time: 16:20	Vessel: Mud Puppy
Coordinates: Lat 44.56364	Long -68.85130	Plan Volume: 1 Gallon
Sampling Station: MM-106A	Deploy No. 1	Sub-tidal Location? <input checked="" type="radio"/> Y <input type="radio"/> N
Weather: 75°F Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: 4'	Core Penetration Length (ft.): 0.4	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89	Recovered Core Length (ft.): 0.4	
Mudline (Corrected Depth) @ NAVD88: 1.36'	Sample Length Retained (ft.): —	
Study Depth (-NAVD88): 0.96'	Acceptable Core (80% recovery): Yes	
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.13	

#### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, non-cohesive, no plasticity, very soft consistency, saturated, dark yellowish brown (10YR 3/4) and black (10YR 2/1), trace roots
0.2		OL: Organic Silt, some clay, cohesive, no plasticity, medium stiff consistency, saturated, very dark gray (10YR 3/1), polychaetes, trace twigs, polychaetes
0.3		MH: Organic Clay, some silt, cohesive, medium plasticity, stiff, wet, very dark gray (10YR 3/1)
Bottom 0.4		

Number of containers:	—	—	—	—	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<input checked="" type="radio"/> Hard	Vibracorer:			4.0"	.50gal/ft
		<input checked="" type="radio"/> Push Corer			3.5"	.33gal/ft
		Slambar				

Live Organisms present	<input checked="" type="radio"/> Y <input type="radio"/> N	Polychaetes  Roots  Material not retained	<b>Comments</b>
Oil-Like Present	<input type="radio"/> Y <input checked="" type="radio"/> N		
Odor Present	<input type="radio"/> Y <input checked="" type="radio"/> N		
Debris Present	<input checked="" type="radio"/> Y <input type="radio"/> N		
<b>Photo Numbers</b>	N/A		

Checked  
4/27/2017  
KC





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wheeler

## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG *Grab sample log*

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Matt Martin</i>
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: <i>K. Casey + Chris W.</i>
Date: <i>10/8/16</i>	Time: <i>16:18</i>	Vessel: <i>Mud Buggy</i>
Coordinates: Lat <i>44.57432184</i>	Long <i>-68.8553185</i>	Plan Volume: <i>1</i>
Sampling Station: <i>MM-200C</i>	Deploy No. <i>3</i>	Sub-tidal Location: <input checked="" type="checkbox"/> N
Weather: <i>70° sunny</i>	Winds: <i>5-10 knots</i>	Waters: <i>Calm</i>
Traffic: <i>None</i>	Water Temp: <i>58°F</i>	
Measured Water Depth [MWD]: <i>3'</i>	Core Penetration Length (ft.): <i>—</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>—</i>	
Mudline (Corrected Depth) @ NAVD88: <i>2.34'</i>	Sample Length Retained (ft.): <i>—</i>	
Study Depth (NAVD88): <i>2.34'</i>	Acceptable Core (80% recovery): <i>Y (N)</i>	
Required Penetration Length: <i>—</i>	Core Volume Retained (gal.): <i>None</i>	

**All Length Measurements are in Decimal Feet**

Sample Interval (ft)	Sample ID #	Description
Top	<i>Attempts:</i>	<i>% Recovery</i>
	<i>1</i>	<i>0</i>
	<i>2</i>	<i>0</i>
	<i>3</i>	<i>0</i>
Bottom		

Number of containers:	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <i>Soft Hard</i>	Vibracorer: P3 P5 VT6 Other				4.0"	.50gal/ft
	Push Corer				3.5"	.33gal/ft

Live Organisms present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	<p><i>Petite Pomar</i></p> <p><b>Comments</b></p> <p><i>Material not retained</i></p>
Oil-Like Present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Odor Present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Debris Present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Photo Numbers	<i>n/a</i>	

*Checked  
4/27/2017  
KC*

*Kathryn Casey  
10/13/16  
Field reviewed*



amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG *Grab Sample log*

Owner: USDC, District of Maine Project No. 3616166052 Logger: *Mark M.*  
 Sub: ~~AquaSurvey~~ WO: ~~3-Geophysical~~ Crew: *Karina C. + Chris W.*  
 Date: *10/8/2016* Time: *16:40* Vessel: *Mudpuppy*

Coordinates: Lat *44.57747451* Long *-68.8559788* Plan Volume: *1*

Sampling Station: *MMP-201c* Deploy No. *-* Sub-tidal Location?  N

Weather: *65°F* Winds: *5-10 knts* Waters: *calm* Traffic: *None* Water Temp: *59°F*

Measured Water Depth [MWD]: <i>5'</i>	Core Penetration Length (ft.): <i>-</i>
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>-</i>
Mudline (Corrected Depth) @ NAVD88: <i>0.11'</i>	Sample Length Retained (ft.): <i>-</i>
Study Depth (NAVD88): <i>0.11'</i>	Acceptable Core (80% recovery): <input checked="" type="checkbox"/> N
Required Penetration Length: <i>-</i>	Core Volume Retained (gal.): <i>None</i>

**All Length Measurements are in Decimal Feet**

Sample Interval (ft.)	Sample Id #	Description
Top		<i>Silt, trace fine sands, trace med sands, non-coh, non-plas, silt, sat org 1/2</i>
Bottom		

Number of containers:	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard					4.0"	.50gal/ft
					<i>3.5"</i> <i>3.0"</i>	<i>33gal/ft</i>

Live Organisms present	<input checked="" type="checkbox"/> N	Comments <i>Petite Ponar</i>
Oil-Like Present	<input checked="" type="checkbox"/> N	
Odor Present	<input checked="" type="checkbox"/> N	
Debris Present	<input checked="" type="checkbox"/> N	
Photo Numbers	<i>N/A</i>	<i>Material not retained</i>

*Checked  
4/27/2017  
KC*

*Karina Casey 10/13/16  
Field reviewed*





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wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG *Grab Sample Log*

*No GPS Point*

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Mark Martin</i>
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: <i>Chris W.</i>
Date: <i>10/8/2016</i>	Time: <i>1326</i>	Vessel: <i>Mudpuppy</i>
Coordinates: Lat <i>44.58267951</i>	Long <i>-68.8562276</i>	Plan Volume: <i>1 gallon</i>
Sampling Station: <i>MM-202c</i>	Deploy No. <i>1</i>	Sub-tidal Location? <input checked="" type="radio"/> Y <input type="radio"/> N
Weather: <i>65°F</i>	Winds: <i>10-12 knots</i>	Waters: <i>Calm</i>
	Traffic: <i>None</i>	Water Temp: <i>50°F</i>
Measured Water Depth [MWD]: <i>9.5'</i>	Core Penetration Length (ft.): <i>—</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>—</i>	
Mudline (Corrected Depth) @ NAVD88: <i>-7.89'</i>	Sample Length Retained (ft.): <i>—</i>	
Study Depth (NAVD88): <i>-7.89'</i>	Acceptable Core (80% recovery): <i>Y N</i>	
Required Penetration Length: <i>—</i>	Core Volume Retained (gal.): <i>None</i>	

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top		<i>silt, fine to med sand, non-coh, non-pls.</i>
		<i>soft, sat, 10YR 9/12</i>
Bottom		

Number of containers:	—	—	—	—	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard					4.0"	.50gal/ft
					3.5"	.33gal/ft

Live Organisms present	Y <input checked="" type="radio"/>
Oil-Like Present	Y <input checked="" type="radio"/>
Odor Present	Y <input checked="" type="radio"/>
Debris Present	Y <input checked="" type="radio"/>

Photo Numbers  
*N/A*

Comments  
*Petite Ponar*  
*Material not retained*

*Checked  
4/27/2017  
KC*

*Karina Casey  
10/13/16  
field reviewed*







## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/6/16	Time: 14:10	Vessel: Mud Puppy
Coordinates: Lat <b>NoGPS Point</b>	Long	Plan Volume: 1 Gallon
Sampling Station: MM-Core01A	Deploy No. 1	Sub-tidal Location? <b>Y</b> <input checked="" type="radio"/>
Weather: Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp:

Measured Water Depth [NAVD88]: <u>        </u>	Core Penetration Length (ft.): 1.5
Correction to NAVD88 (+/- ft. from NAVD88): -5.89	Recovered Core Length (ft.): 1.5
Mudline (Corrected Depth) @ NAVD88: <b>4.86'</b>	Sample Length Retained (ft.): <u>        </u>
Study Depth (-NAVD88): <b>3.36'</b>	Acceptable Core (80% recovery): Yes
Required Penetration Length: 1 ft	Core Volume Retained (gal.): <b>0.50</b>

**All Length Measurements are in Decimal Feet**

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, moderate black steams and twigs with medium brown roots
0.5		OL: Organic Silt, trace black steams, brown (10YR 4/3)
0.8		MH: Organic Silt with trace clay, some black steams and trigs, brown (7.5YR 4/2)
Bottom 1.5		

Number of containers:	1- 3 gallons	<u>        </u>	<u>        </u>	<u>        </u>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<b>Hard</b>	Vibracorer:			4.0"	.50gal/ft
		<b>Push Corer</b>			<b>3.5"</b>	<b>.33gal/ft</b>
		Slambar				

Live Organisms present	Y <input checked="" type="radio"/> N <input type="radio"/>	<p style="text-align: center;"><b>Comments</b></p> <p>Slight organic like odor</p> <p>Material not retained for clean sample</p>
Oil-Like Present	Y <input type="radio"/> N <input checked="" type="radio"/>	
Odor Present	<b>Y</b> <input type="radio"/> N <input checked="" type="radio"/>	
Debris Present	Y <input type="radio"/> N <input checked="" type="radio"/>	
<b>Photo Numbers</b>	N/A	

Checked  
 4/27/2017  
 KC





## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/6/16	Time: 14:30	Vessel: Mud Puppy
Coordinates: Lat 44.55642	Long <b>-68.8579</b>	Plan Volume: 1 Gallon
Sampling Station: MM-Core01B	Deploy No. 1	Sub-tidal Location? <b>Y</b> <input checked="" type="radio"/>
Weather: Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp:
Measured Water Depth [NAVD88]: <b>—</b>	Core Penetration Length (ft.): 0.5	
Correction to NAVD88 (+/- ft. from NAVD88): <b>-5.89'</b>	Recovered Core Length (ft.): 0.5	
Mudline (Corrected Depth) @ NAVD88: <b>5.61'</b>	Sample Length Retained (ft.): <b>—</b>	
Study Depth (-NAVD88): <b>5.11'</b>	Acceptable Core (80% recovery): Yes	
Required Penetration Length: 1 ft	Core Volume Retained (gal.): <b>0.17</b>	

#### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, predominately roots, trace square wood chips, pale brown (10YR 6/3)
↓		
Bottom 0.5		

Number of containers:	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4.0"	.50gal/ft
	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3.5"	.33gal/ft

Live Organisms present	Y <input checked="" type="radio"/> N <input type="radio"/>	<b>Comments</b> Slight organic like odor Trace square wood chips  Material not retained for clean sample
Oil-Like Present	Y <input type="radio"/> N <input checked="" type="radio"/>	
Odor Present	Y <input checked="" type="radio"/> N <input type="radio"/>	
Debris Present	Y <input checked="" type="radio"/> N <input type="radio"/>	
<b>Photo Numbers</b>	N/A	

Checked  
4/27/2017  
KC





amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>K. Casey</i>
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: <i>MM + CW</i>
Date: <i>10/6/2016</i>	Time: <i>14:45</i>	Vessel: <i>Mudpuppy</i>
Coordinates: Lat <i>44.55641</i>	Long <i>-68.8578</i>	Plan Volume: <i>1 gallon</i>
Sampling Station: <i>MM-core-01C</i>	Deploy No. <i>1</i>	Sub-tidal Location: <input checked="" type="radio"/> Y <input type="radio"/> N
Weather: <i>Sunny</i>	Winds: <i>0-5 Knots</i>	Waters: <i>Calm</i>
Traffic: <i>None</i>	Water Temp: <i>-</i>	
Measured Water Depth [MWD]: <i>-</i>	Core Penetration Length (ft.): <i>0.4'</i>	
Correction to NAVD88 (+/-ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>0.4'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>5.71'</i>	Sample Length Retained (ft.): <i>-</i>	
Study Depth (NAVD88): <i>5.31'</i>	Acceptable Core (80% recovery): <i>Y</i> <input checked="" type="radio"/> N	
Required Penetration Length: <i>1.0'</i>	Core Volume Retained (gal.): <i>0.13</i>	

All Length Measurements are in Decimal Feet

*0.1*  
*0.2'*  
*0.4'*

Sample Interval (ft)	Sample id #	Description
Top		<i>Silt; TR Twigs; 10" R 4/2</i>
		<i>Jello like</i>
		<i>4 to med plasticity</i>
		<i>and non-Jello like</i>
Bottom		

Number of containers:	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <i>Soft</i>	<i>Hard</i>	Vibracorer: P3 P5 VT6	Other		4.0"	50gal/ft
		Push Core	Slambar		<u>3.5"</u>	<u>.33gal/ft</u>

Live Organisms present	Y <input checked="" type="radio"/> N	<p>Comments</p> <p><i>SUB - Tidal</i></p> <p><i>Material not retained</i></p>
Oil-Like Present	Y <input checked="" type="radio"/> N	
Odor Present	Y <input checked="" type="radio"/> N	
Debris Present	Y <input checked="" type="radio"/> N	
Photo Numbers	<i>N/A</i>	

*Checked*  
*4/27/2017*  
*KC*



amec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>K. Casey</u>
Sub: <u>AquaSurvey</u>	WO: <u>3 Geophysical</u>	Crew: <u>MM + CW</u>
Date: <u>10/6/2016</u>	Time: <u>1415</u>	Vessel: <u>Mud PUPPY</u>
Coordinates: Lat <u>44.55717</u>	Long <u>-68.8561</u>	Plan Volume: <u>1 gallon</u>
Sampling Station: <u>MM - Core 02A</u>	Deploy No. <u>1</u>	Sub-tidal Location? Y <input type="checkbox"/> N <input checked="" type="checkbox"/>
Weather: <u>Sunny</u>	Winds: <u>0-5 Knots</u>	Waters: <u>Calm</u>
Traffic: <u>None</u>	Water Temp: <u>-</u>	
Measured Water Depth [MWD]: <u>-</u>	Core Penetration Length (ft.): <u>0.5'</u>	
Correction to NAVD88 (+/-ft. from NAVD88): <u>-5.89'</u>	Recovered Core Length (ft.): <u>0.5'</u>	
Mudline (Corrected Depth) @ NAVD88: <u>5.61'</u>	Sample Length Retained (ft.): <u>-</u>	
Study Depth (NAVD88): <u>5.11'</u>	Acceptable Core (80% recovery): Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
Required Penetration Length: <u>1.0'</u>	Core Volume Retained (gal.): <u>0.17</u>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top		RR MD Silt; TR FN Sand, Med. Plastic
		Some roots
Bottom		

①  
~ 0.5'

Number of containers:	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <u>Soft</u> <u>Hard</u>					4.0"	50 gal/ft
					<u>3.5"</u>	<u>.33gal/ft</u>

Live Organisms present	<u>Y</u>
Oil-Like Present	<u>Y</u>
Odor Present	<u>Y</u>
Debris Present	<u>Y</u>
Photo Numbers	<u>N/A</u>

Comments  
Material not retained

Checked  
4/27/2017  
KC





arnec  
foster  
wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>K. Casey</i>
Sub: <del>AquaSurvey</del>	WO: <del>2 Geophysical</del>	Crew: <i>MM + CW</i>
Date: <i>10/6/2016</i>	Time: <i>15:03</i>	Vessel: <i>Mudpuddy</i>
Coordinates: Lat <i>44.55729</i>	Long <i>-68.8563</i>	Plan Volume: <i>1 gallon</i>
Sampling Station: <i>MM-Core 02B</i>	Deploy No. <i>1</i>	Sub-tidal Location? Y (N)
Weather: <i>Sunny</i>	Winds: <i>0-5 knots</i>	Waters: <i>Calm</i>
	Traffic: <i>None</i>	Water Temp: <i>-</i>
Measured Water Depth (MWD): <i>-</i>	Core Penetration Length (ft.): <i>0.7</i>	
Correction to NAVD88 (+/-ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>0.7</i>	
Mudline (Corrected Depth) @ NAVD88: <i>5.61'</i>	Sample Length Retained (ft.): <i>-</i>	
Study Depth (NAVD88): <i>4.91'</i>	Acceptable Core (80% recovery): Y (N)	
Required Penetration Length: <i>1'</i>	Core Volume Retained (gal.): <i>0.23</i>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top		<i>10 YR 4/1; Silt</i>
		<i>TR Twigs; Semi Jello like</i>
		<i>silt; TR roots; med plastic</i>
		<i>10 YR 4/1</i>
Bottom		

*0.1*  
*0.2*  
*0.7*

Number of containers: <i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter
Liner Type: <i>Soft</i>					EST. Volume
		Vibracorer: P3 P5 VT6	Other		4.0"
		Push Corer	Slambar		3.5"

Live Organisms present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	Comments  <i>Material not retained</i>
Oil-Like Present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Odor Present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Debris Present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Photo Numbers	<i>N/A</i>	

*Checked  
4/28/2017  
KC*





amec  
foster  
wheeler



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>K. Casey</u>				
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: <u>MM+CID</u>				
Date: <u>10/6/2016</u>	Time: <u>15:27</u>	Vessel: <u>Mudpuppy</u>				
Coordinates: Lat <u>44.55722</u>	Long <u>-68.8562</u>	Plan Volume: <u>1 gallon</u>				
Sampling Station: <u>MM-Core 02C</u>	Deploy No. <u>2</u>	Sub-tidal Location? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N				
Weather: <u>Sunny</u>	Winds: <u>0-5 knots</u>	Waters: <u>Calm</u>				
	Traffic: <u>None</u>	Water Temp: <u>-</u>				
Measured Water Depth [MWD]: <u>-</u>	Core Penetration Length (ft.): <u>0.5'</u>					
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.89'</u>	Recovered Core Length (ft.): <u>0.5'</u>					
Mudline (Corrected Depth) @ NAVD88: <u>5.61'</u>	Sample Length Retained (ft.): <u>-</u>					
Study Depth (NAVD88): <u>5.11'</u>	Acceptable Core (80% recovery): <u>Y (N)</u>					
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.165</u>					
<b>All Length Measurements are in Decimal Feet</b>						
Sample Interval (ft.)	Sample Id #	Description				
Top						
0.31		A semi Jello like, 104R 5/3				
0.51		Silt; TR roots				
	Bottom	104R 4/2				
Number of containers:	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <u>Soft</u> <del>Hard</del>	Vibracorer: P3 P5 VT6 Other			4.0"	.50gal/ft	
	<u>Rush Corer</u>			3.5"	.33gal/ft	
Slambar						
Live Organisms present	Y	<input checked="" type="checkbox"/> N	<b>Comments</b>  <u>2 cores collected, but not retained</u>  <u>Inter Tidal Material not retained</u>			
Oil-Like Present	Y	<input checked="" type="checkbox"/> N				
Odor Present	Y	<input checked="" type="checkbox"/> N				
Debris Present	Y	<input checked="" type="checkbox"/> N				
Photo Numbers	<u>N/A</u>					

Checked  
5/12/2017  
KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/6/16	Time: 15:12	Vessel: Mud Puppy
Coordinates: Lat 44.55869	Long -68.8561	Plan Volume: 1 Gallon
Sampling Station: MM-Core03A	Deploy No. 1	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: —

Measured Water Depth (NAVD88): —	Core Penetration Length (ft.): 1.2
Correction to NAVD88 (+/- ft. from NAVD88): -5.89	Recovered Core Length (ft.): 1.2
Mudline (Corrected Depth) @ NAVD88: 5.36'	Sample Length Retained (ft.): —
Study Depth (-NAVD88): 4.16'	Acceptable Core (80% recovery): Yes
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.40

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, Semi-jello like, trace twigs, dark grayish brown (10YR 4/2) to very dark grayish brown (10YR 3/2)
0.8		MH: Organic Silt, moderate roots, medium plasticity, brown (10YR 5/3)
Bottom 1.2		

Number of containers: —	Core Volumes	
Type of container: bucket	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	4.0"	.50gal/ft
Hard	3.5"	.33gal/ft
Vibracorer: Push Corer	Slambar	

Live Organisms present	Y (N)
Oil-Like Present	Y (N)
Odor Present	Y (N)
Debris Present	Y (N)

**Photo Numbers**  
N/A

**Comments**

Cut Bank

Material not retained

Checked  
4/27/2017  
KC



amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: K Casey  
 Sub: ~~AquaSurvey~~ WO: ~~3 - Geophysical~~ Crew: MM + CW  
 Date: 10/6/2016 Time: 15:21 Vessel: Mudpuppy  
 Coordinates: Lat 44.55847 Long -68.8562 Plan Volume: 1 gallon  
 Sampling Station: MM - Core 038 DeplNo: 1 Subtidal Location? Y (N)

Weather: Sunny Winds: 0-5 knots Waters: Calm Traffic: None Water Temp: -  
 Measured Water Depth (MWD): - Core Penetration Length (ft.): 0.8'  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Recovered Core Length (ft.): 0.8'  
 Mudline (Corrected Depth) @ NAVD88: 5.61' Sample Length Retained (ft.): -  
 Study Depth (NAVD88): 4.81' Acceptable Core (80% recovery): Y N  
 Required Penetration Length: 1' Core Volume Retained (gal.): 0.26

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top		
		Maple leaf ~ 0.4' w/ stems
		4 Bella like Cement
		Silt, soft Cohesiveness
Bottom		10 YR 3/2; TR Twigs

0.1  
0.5'  
0.8'

Number of containers: - - - - Core Volumes  
 Type of container: bucket - liner bag - jar - other - Nominal core-barrel diameter EST. Volume  
 Liner Type: Soft - Hard - Vibrator: P3 P5 VT6 Other 4.0" .50gal/ft  
 Push Corer - Slammer 3.5" .33gal/ft

Live Organisms present Y N  
 Oil-Like Present Y N  
 Odor Present Y N  
 Debris Present Y N  
 Photo Numbers N/A  
 Comments: Material not retained  
Reposital Bank

Checked  
4/27/2017  
KC



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/6/16	Time: 15:40	Vessel: Mud Puppy
Coordinates: Lat 44.55814	Long -68.8574	Plan Volume: 1 Gallon
Sampling Station: MM-Core04A	Deploy No. 1	Sub-tidal Location? <input checked="" type="radio"/> Y <input type="radio"/> N
Weather: Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: —

Measured Water Depth [NAVD88]: —	Core Penetration Length (ft.): 1.0
Correction to NAVD88 (+/- ft. from NAVD88): -5.89	Recovered Core Length (ft.): 1.0
Mudline (Corrected Depth) @ NAVD88: 5.11'	Sample Length Retained (ft.): —
Study Depth (-NAVD88): 4.11'	Acceptable Core (80% recovery): Yes
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.330

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, semi-jello lik, trace twigs
0.5		Trace Roots, pale brown (10YR 6/3)
		ML: Organic Silt, cohesive, high plasticity, dark grayish brown (10YR 4/2)
Bottom 1.0		

Number of containers:	—	—	—	—	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<input checked="" type="radio"/> Hard	Vibracorer:			4.0"	.50gal/ft
		<input checked="" type="radio"/> Push Corer			3.5"	.33gal/ft

Live Organisms present	Y	<input checked="" type="radio"/> N
Oil-Like Present	Y	<input checked="" type="radio"/> N
Odor Present	Y	<input checked="" type="radio"/> N
Debris Present	Y	<input checked="" type="radio"/> N

**Photo Numbers**  
N/A

**Comments**  
  
Material not retained

Checked  
4/27/2017  
KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/6/16	Time: 15:52	Vessel: Mud Puppy
Coordinates: Lat 44.55789	Long -68.8574	Plan Volume: 1 Gallon
Sampling Station: MM-Core04B	Deploy No. 1	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: —

Measured Water Depth [NAVD88]: —	Core Penetration Length (ft.): 1.0
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 1.0
Mudline (Corrected Depth) @ NAVD88: 5.01'	Sample Length Retained (ft.): —
Study Depth (-NAVD88): 4.01'	Acceptable Core (80% recovery): Yes
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.330

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, predominately roots, strong sulfur like odor, yellowish brown (10YR 5/4)
Bottom 1.0		

Number of containers:	—	—	—	—	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	Hard	Vibracorer:			4.0"	.50gal/ft
		Push Corer			3.5"	.33gal/ft

Live Organisms present	Y (N)	Comments Strong sulfur like odor
Oil-Like Present	Y (N)	
Odor Present	(Y) N	
Debris Present	Y (N)	
Photo Numbers	N/A	Material not retained

Checked  
4/27/2017  
KC



amec  
foster  
wheeler



Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>V. Casey</i>
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: <i>MM + CW</i>
Date: <i>10/6/16</i>	Time: <i>18:04</i>	Vessel: <i>Mudpuppy</i>
Coordinates: Lat <i>44.55800</i>	Long <i>-68.8574</i>	Plan Volume: <i>1 gallon</i>
Sampling Station: <i>MM-CORE 04C</i>	Deploy No. <i>1</i>	Sub-tidal Location? <input checked="" type="checkbox"/> N
Weather: <i>Sunny</i>	Winds: <i>0-5 knots</i>	Waters: <i>calm</i>
Traffic: <i>None</i>	Water Temp: <i>-</i>	
Measured Water Depth (MWD): <i>-</i>	Core Penetration Length (ft.): <i>0.4'</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>0.4'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>4.94'</i>	Sample Length Retained (ft.): <i>-</i>	
Study Depth (NAVD88): <i>4.54'</i>	Acceptable Core (80% recovery): <i>Y N</i>	
Required Penetration Length: <i>1'</i>	Core Volume Retained (gal.): <i>0.13</i>	

All Length Measurements are in Decimal Feet

*0.1*  
*0.2*  
*0.4'*

Sample Interval (ft.)	Sample Id #	Description
Top		
		<i>Jello like</i>
		<i>Semi Jello like</i>
		<i>Silt, IR Roots + Twigs</i>
Bottom		

Number of containers:	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: <i>Soft</i>	<i>Hard</i>	Vibrator: P3 P5 V16 Other			4.0"	50gal/ft
		<i>Push core</i>			<i>35" 3.5"</i>	<i>33 gal/ft 0.33gal/ft</i>

Live Organisms present	Y <input checked="" type="checkbox"/> N	Comments
Oil-Like Present	Y <input checked="" type="checkbox"/> N	
Odor Present	Y <input checked="" type="checkbox"/> N	
Debris Present	Y <input checked="" type="checkbox"/> N	
Photo Numbers	<i>N/A</i>	<i>Material not retained</i>

*Checked  
4/27/2017  
KC*



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/6/16	Time: 16:13	Vessel: Mud Puppy
Coordinates: Lat 44.55962	Long -68.8581	Plan Volume: 1 Gallon
Sampling Station: MM-Core05A	Deploy No. 1	Sub-tidal Location? Y (N)
Weather: Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: —

Measured Water Depth [NAVD88]: —	Core Penetration Length (ft.): 1.6
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 1.6
Mudline (Corrected Depth) @ NAVD88: 4.36'	Sample Length Retained (ft.): —
Study Depth (-NAVD88): 2.76'	Acceptable Core (80% recovery): Yes
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.53

**All Length Measurements are in Decimal Feet**

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		MH: Organic Silt, jello like, high plasticity, trace roots, yellowish brown (10YR 5/4)
0.5		MH: Organic Silt, high plasticity, trace roots, dark brown (10YR 3/3)
1.1		OL: Organic Silt, low plasticity, some roots, non-cohesive, brown (10YR 4/3)
Bottom 1.6		

Number of containers: —	Core Volumes				
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	Hard	Vibracorer: Push Corer	Slambar	4.0"	.50gal/ft
				3.5"	.33gal/ft

Live Organisms present	Y (N)
Oil-Like Present	Y (N)
Odor Present	Y (N)
Debris Present	Y (N)

**Photo Numbers**  
N/A

**Comments**  
  
Material not retained

Checked  
4/28/2017  
KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/6/16	Time: 16:31	Vessel: Mud Puppy
Coordinates: Lat 44.55966	Long -68.8585	Plan Volume: 1 Gallon
Sampling Station: MM-Core5B	Deploy No. 1	Sub-tidal Location? <input checked="" type="radio"/> Y <input type="radio"/> N
Weather: Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: —

Measured Water Depth [NAVD88]: —	Core Penetration Length (ft.): 0.7
Correction to NAVD88 (+/- ft. from NAVD88): -5.89	Recovered Core Length (ft.): 0.7
Mudline (Corrected Depth) @ NAVD88: 4.11'	Sample Length Retained (ft.): —
Study Depth (-NAVD88): 3.41'	Acceptable Core (80% recovery): Yes
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.23

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		MH: Organic Silt, trace leaves and roots, high plasticity, moderate sulfur odor, dark brown (10YR 3/3)
		Increase to some leaves and roots
Bottom 0.7		

Number of containers: —	—	—	—	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	Hard	Vibracorer: Push Corer		4.0"	.50gal/ft
		Slambar		3.5"	.33gal/ft

Live Organisms present	Y <input checked="" type="radio"/> N	Comments Moderate sulfur like odor
Oil-Like Present	Y <input type="radio"/> N	
Odor Present	Y <input checked="" type="radio"/> N	
Debris Present	Y <input type="radio"/> N	
Photo Numbers	N/A	Material not retained

Checked  
4/28/2017  
KC







## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey	
Sub:	WO:	Crew: MM, CW	
	Date: 10/7/16	Time: 12:00	Vessel: Mud Puppy
Coordinates: Lat	44.57317	Long	-68.85531
		Plan Volume:	1 Gallon
Sampling Station: MM - Core 100A	Deploy No. 1	Sub-tidal Location?	Y <input checked="" type="radio"/> N <input type="radio"/>
Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm	Traffic: None
			Water Temp: 58°F

Measured Water Depth [NAVD88]: 1.5'	Core Penetration Length (ft.): 0.6
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 0.6
Mudline (Corrected Depth) @ NAVD88: -2.39'	Sample Length Retained (ft.): -
Study Depth (-NAVD88): -2.99'	Acceptable Core (80% recovery): Yes
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.20

#### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, trace clay, cohesive, low plasticity, soft consistency, trace twigs, shell fragments, saturated, black (10YR 2/1)
0.5		MH: Organic Silt, trace clay, cohesive, medium plasticity, soft consistency, trace twigs, saturated, black (10YR 2/1)
Bottom 0.6		

Number of containers:	-	-	-	-	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<input checked="" type="radio"/> Hard	Vibracorer:			4.0"	.50gal/ft
		Push Corer			3.5"	.33gal/ft

Live Organisms present	Y <input checked="" type="radio"/> N <input type="radio"/>	<p style="text-align: center;"><b>Comments</b></p> <p>Trace twigs and shell fragments</p> <p>Material not retained</p>
Oil-Like Present	Y <input checked="" type="radio"/> N <input type="radio"/>	
Odor Present	Y <input checked="" type="radio"/> N <input type="radio"/>	
Debris Present	Y <input checked="" type="radio"/> N <input type="radio"/>	
<b>Photo Numbers</b>	N/A	

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## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine		Project No.: 3616166052		Logger: K. Casey	
Sub:		WO:		Crew: MM, CW	
Date: 10/7/16		Time: 11:50		Vessel: Mud Puppy	
Coordinates: Lat	44.57329	Long	-68.8562	Plan Volume:	1 Gallon
Sampling Station: MM - Core 100B		Deploy No. 1	Sub-tidal Location? Y (N)		
Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm	Traffic: None	Water Temp: 58°F	
Measured Water Depth [NAVD88]: <u>        </u>			Core Penetration Length (ft.): 1.0		
Correction to NAVD88 (+/- ft. from NAVD88): -5.89			Recovered Core Length (ft.): 1.0		
Mudline (Corrected Depth) @ NAVD88: <u>-0.89'</u>			Sample Length Retained (ft.): <u>        </u>		
Study Depth (-NAVD88): <u>-1.89'</u>			Acceptable Core (80% recovery): Yes		
Required Penetration Length: 1 ft			Core Volume Retained (gal.): 0.33		
<b>All Length Measurements are in Decimal Feet</b>					
Sample Interval (ft.)	Sample Id #	Description			
Top 0.0		OL: Organic Silt, non cohesive to cohesive, non plastic to low plasticity, very soft to soft consistency, black (2.5Y 2.5/1) to very dark grayish brown (10YR 3/1), trace to moderate twigs and leaves			
Bottom 1.0					
Number of containers: <u>        </u>		Core Volumes			
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter
Liner Type: Soft	<u>Hard</u>	Vibracorer:			EST. Volume
		Push Corer		Slambar	4.0" .50gal/ft
					<u>3.5" .33gal/ft</u>
Live Organisms present	Y (N)	<b>Comments</b>  Trace to some twigs  Material not retained			
Oil-Like Present	Y (N)				
Odor Present	Y (N)				
Debris Present	(Y) N				
<b>Photo Numbers</b>					
N/A					

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4/27/2017  
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## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/7/16	Time: 12:35	Vessel: Mud Puppy
Coordinates: Lat 44.57014	Long -68.85340	Plan Volume: 1 Gallon
Sampling Station: MM - <b>Core 101A</b>	Deploy No. 1	Sub-tidal Location? <input checked="" type="radio"/> Y <input type="radio"/> N
Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: 1.5'	Core Penetration Length (ft.): 1.0	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 1.0	
Mudline (Corrected Depth) @ NAVD88: <b>-0.64'</b>	Sample Length Retained (ft.): <b>—</b>	
Study Depth (-NAVD88): <b>-1.64'</b>	Acceptable Core (80% recovery): Yes	
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.330	
<b>All Length Measurements are in Decimal Feet</b>		
Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, cohesive, no plasticity, very soft consistency, saturated, trace roots, very dark grayish brown (10YR 3/2), polychaete
0.2		OL: Organic Silt, cohesive, no plasticity, very soft consistency, saturated, trace roots, black (5Y 2.5/1), no odor, polychaete
0.4		MH: Organic Silt, cohesive, medium plasticity, soft consistency, wet to saturated, trace roots, black (5Y 2.5/1), no odor
0.7		MH: Organic Silt, cohesive, medium plasticity, soft consistency, wet to saturated, trace roots, very dark gray (5Y 3/1), trace sulfur like odor
Bottom 1.0		
Number of containers: <input checked="" type="checkbox"/> bucket <input checked="" type="checkbox"/> liner bag <input checked="" type="checkbox"/> jar <input checked="" type="checkbox"/> other		Core Volumes
Type of container: bucket	liner bag	Nominal core-barrel diameter
Liner Type: Soft <input checked="" type="radio"/> Hard <input type="radio"/>	Vibracorer: <input checked="" type="radio"/> Push Corer <input type="radio"/>	EST. Volume
	Slambar	4.0" → .50gal/ft
		<b>3.5"</b> → <b>.33gal/ft</b>
Live Organisms present <input checked="" type="radio"/> Y <input type="radio"/> N	polychaete	<b>Comments</b>
Oil-Like Present <input type="radio"/> Y <input checked="" type="radio"/> N		
Odor Present <input checked="" type="radio"/> Y <input type="radio"/> N	trace sulfur like odor	
Debris Present <input type="radio"/> Y <input checked="" type="radio"/> N		
<b>Photo Numbers</b>		
N/A		
Material not retained		

Checked  
 4/27/2017  
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# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/7/16	Time: 12:35	Vessel: Mud Puppy
Coordinates: Lat 44.56971	Long -68.85455	Plan Volume: 1 Gallon
Sampling Station: MM-Core 101B	Deploy No. 1	Sub-tidal Location? Y (N)
Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm
Traffic: None	Water Temp: 58°F	
Measured Water Depth (NAVD88): 1.5'	Core Penetration Length (ft.): 0.7	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 0.7	
Mudline (Corrected Depth) @ NAVD88: -0.64'	Sample Length Retained (ft.): -	
Study Depth (-NAVD88): -1.34'	Acceptable Core (80% recovery): Yes	
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.23	

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, cohesive, low plasticity, soft consistency, saturated, trace shell, abundant roots, dark grayish brown (10YR 4/2), polychaete, trace sulfur like odor
0.3		OL: Organic Silt, cohesive, no plasticity, soft consistency, saturated, medium roots, dark grayish brown (10YR 4/2), trace sulfur like odor
0.5		OL: Organic Silt, cohesive, no plasticity, medium stiff consistency, wet, trace roots, dark grayish brown (10YR 4/2), trace sulfur like odor
Bottom 0.7		

Number of containers:	-	-	-	-	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	(Hard)	Vibracorer: Push Corer		Slambar	4.0"	.50gal/ft
					3.5"	.33gal/ft

Live Organisms present	(Y) (N)	polychaete	Comments
Oil-Like Present	(Y) (N)		
Odor Present	(Y) (N)	trace sulfur-like odor	
Debris Present	(Y) (N)	roots	
Photo Numbers	N/A		
Material not retained			

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## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/7/16	Time: 13:54	Vessel: Mud Puppy
Coordinates: <b>Lat</b> 44.56630	<b>Long</b> -68.85644	Plan Volume: 1 Gallon
Sampling Station: MM - <i>Core 102A</i>	Deploy No. 1	Sub-tidal Location? <b>Y</b> <input checked="" type="radio"/> <b>N</b>

Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: 2.5'	Core Penetration Length (ft.): 0.5			
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 0.5			
Mudline (Corrected Depth) @ NAVD88: <i>2.11'</i>	Sample Length Retained (ft.): <i>—</i>			
Study Depth (-NAVD88): <i>2.39'</i>	Acceptable Core (80% recovery): Yes			
Required Penetration Length: 1 ft	Core Volume Retained (gal.): <i>0.17</i>			

**All Length Measurements are in Decimal Feet**

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, non-cohesive, no plasticity, very soft consistency, saturated, dark grayish brown (2.5Y 4/2)
0.2		OL: Organic Silt, non-cohesive, no plasticity, very soft consistency, saturated, trace sulfur like odor, trace roots, very dark gray (10YR 3/1)
0.3		OL: Organic Silt, non-cohesive, no plasticity, very soft consistency, saturated, trace sulfur like odor, trace roots, very dark gray (10YR 3/1), polychaete
Bottom 0.5		OL: Organic Silt, cohesive, low plasticity, soft consistency, wet, trace sulfur like odor, some roots, dark gray (10YR 4/1), polychaete

Number of containers:	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<input checked="" type="radio"/> Hard	Vibrator:			4.0"	.50gal/ft
		Push Corer			3.5"	.33gal/ft
		Slambar				

Live Organisms present <input checked="" type="radio"/> Y <input type="radio"/> N	<b>Comments</b> Polychaete Trace sulfur like odor Roots  Material not retained
Oil-Like Present <input type="radio"/> Y <input checked="" type="radio"/> N	
Odor Present <input checked="" type="radio"/> Y <input type="radio"/> N	
Debris Present <input checked="" type="radio"/> Y <input type="radio"/> N	
<b>Photo Numbers</b> N/A	

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4/27/2017  
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Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No: 3616166052	Logger: <u>K. Casey</u>
Sub: <u>AquaSurvey</u>	WO: <del>Geophysical</del>	Crew: <u>MM + CW</u>
Date: <u>10/27/2016</u>	Time: <u>13:40</u>	Vessel: <u>Mudpuppy</u>
Coordinates: Lat <u>44.56638</u>	Long <u>-68.8571</u>	Plan Volume: <u>1 gallon</u>
Sampling Station: <u>MM - Core 102B</u>	Deploy No. <u>1</u>	Sub-tidal Location? <u>Y (N)</u>
Weather: <u>70°F Sunny</u>	Winds: <u>0-5 knots</u>	Waters: <u>Calm</u>
	Traffic: <u>None</u>	Water Temp: <u>58°F</u>
Measured Water Depth [MWD]: <u>2.5'</u>	Core Penetration Length (ft.): <u>1'</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.89'</u>	Recovered Core Length (ft.): <u>1'</u>	
Mudline (Corrected Depth) @ NAVD88: <u>2.11'</u>	Sample Length Retained (ft.): <u>-</u>	
Study Depth (NAVD88): <u>2.11'</u>	Acceptable Core (80% recovery): <u>(Y) N</u>	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>0.33</u>	
All Length Measurements are in Decimal Feet		
Sample Interval (ft.)	Sample Id #	Description
0' Top		TR Med. Sand: silt, coh, Non-pla, very soft cons, SAT, 10R 4/2, TR Twigs
0.2'		↓ same, some med sand, TR
0.5'		TR FN sand silt, coh, Low plas, soft cons, SAT 10YR3/1 TRACE ROOTS
0.7'		Leaf fragment, Roots, trace twig
~1' Bottom		1. silt, trace fine sand, moderate l. plates coh./non partic, soft cons./SAT/trace roots/
Number of containers:	—	—
Type of container:	bucket	liner bag jar other
Liner Type: Soft <u>Hard</u>	Vibracorer: P3 P5 VT6 Other	Nominal core-barrel diameter
	<u>Push Corer</u>	Slambar
		4.0" EST. Volume
		3.5" .50gal/ft
		.33gal/ft
Live Organisms present	Y <u>N</u>	Comments
Oil-Like Present	Y <u>(N)</u>	
Odor Present	<u>(Y) N</u>	
Debris Present	<u>(Y) N</u>	
Photo Numbers	N/A	

0'  
0.2'  
0.5'  
0.7'  
~1'

FN Sou  
10YR2/1

Trace sulfur like  
Roots

Material not retained

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4/28/2017  
KC



amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation  
<sup>GRAB</sup>  
**SEDIMENT CORE-LOG**

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>K. Casey</u>
Sub: <u>AquaSurvey</u>	WO: <del>3</del> <u>Geophysical</u>	Crew: <u>MM + CW</u>
Date: <u>10/11/2016</u>	Time: <u>14:03</u>	Vessel: <u>Mudpuppy</u>
Coordinates: Lat <u>44.56628</u>	Long <u>-68.7568</u>	Plan Volume: <u>-</u>
Sampling Station: <u>MM-Core 102C</u>	Deploy No. <u>-</u>	Sub-tidal Location <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Weather: <u>70° Sunny</u>	Winds: <u>0-5 knots</u>	Waters: <u>Calm</u>
	Traffic: <u>None</u>	Water Temp: <u>58°F</u>
Measured Water Depth (MWD): <u>11.5'</u>	Core Penetration Length (ft.): <u>-</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.89'</u>	Recovered Core Length (ft.): <u>-</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-6.89'</u>	Sample Length Retained (ft.): <u>-</u>	
Study Depth (NAVD88): <u>-</u>	Acceptable Core (80% recovery): <u>Y</u> <input checked="" type="checkbox"/> N	
Required Penetration Length: <u>-</u>	Core Volume Retained (gal.): <u>None</u>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top		
Bottom		

Number of containers: <u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	Core Volumes	
Type of container: bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard	Vibracorer: P3 P5 VT6 Other			4.0"	.50gal/ft
	Push Corer			3.5"	.33gal/ft

Live Organisms present	Y	<input checked="" type="checkbox"/> N
Oil-Like Present	Y	<input checked="" type="checkbox"/> N
Odor Present	Y	<input checked="" type="checkbox"/> N
Debris Present	Y	<input checked="" type="checkbox"/> N
Photo Numbers	<u>N/A</u>	

Comments  
 Hand Auger → No Return } Hard Bottom  
 Petite Ponar → No Return }  
 Material not retained.

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4/27/2017  
KC





## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/7/16	Time: 14:56	Vessel: Mud Puppy
Coordinates: Lat 44.56196	Long -68.85713	Plan Volume: 1 Gallon
Sampling Station: MM-Core 103A	Deploy No. 1	Sub-tidal Location? <input checked="" type="radio"/> Y <input type="radio"/> N
Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: 4.5'	Core Penetration Length (ft.): 0.9	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 0.9	
Mudline (Corrected Depth) @ NAVD88: 0.91'	Sample Length Retained (ft.): —	
Study Depth (-NAVD88): 0.01'	Acceptable Core (80% recovery): Yes	
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.30	
<b>All Length Measurements are in Decimal Feet</b>		
Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, cohesive, no plasticity, very soft consistency, saturated, very dark grayish brown (2.5Y 3/2), trace roots
0.1		OL: Organic Silt, cohesive, no plasticity, soft consistency, saturated, very dark brown (10YR 2/1), trace roots, trace leaves, trace twigs, trace shells
0.3		OL: Organic Silt, cohesive, low plasticity, soft consistency, wet, black (2.5Y 2.5/1), roots, leaves, twigs
0.6		OL: Organic Silt, cohesive, low plasticity, soft consistency, wet, black (2.5Y 2.5/1), roots, leaves, twigs, trace sulfur like odor
Bottom 0.9		
Number of containers: —		Core Volumes
Type of container: bucket	liner bag	Nominal core-barrel diameter
Liner Type: Soft	jar	EST. Volume
<input checked="" type="radio"/> Hard	other	
Vibracorer: Push Corer	Slambar	4.0" .50gal/ft
		3.5" .33gal/ft
Live Organisms present <input checked="" type="radio"/> Y <input type="radio"/> N	Trace shell	<b>Comments</b>
Oil-Like Present <input type="radio"/> Y <input checked="" type="radio"/> N		
Odor Present <input checked="" type="radio"/> Y <input type="radio"/> N	Trace sulfur like odor	
Debris Present <input checked="" type="radio"/> Y <input type="radio"/> N	Trace roots, twigs, and leaves	
<b>Photo Numbers</b>		
N/A		
		Material not retained

Checked  
4/27/2017  
KC



## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/7/16	Time: 14:51	Vessel: Mud Puppy
Coordinates: Lat 44.56182	Long -68.85760	Plan Volume: 1 Gallon
Sampling Station: MM - <b>Core 103 B</b>	Deploy No. 1	Sub-tidal Location? <b>Y</b> <input checked="" type="radio"/>

Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm	Traffic: None
			Water Temp: 58°F

Measured Water Depth [NAVD88]: <b>5'</b>	Core Penetration Length (ft.): 0.3
Correction to NAVD88 (+/- ft. from NAVD88): <b>-5.89'</b>	Recovered Core Length (ft.): 0.3
Mudline (Corrected Depth) @ NAVD88: <b>0.36'</b>	Sample Length Retained (ft.): <b>—</b>
Study Depth (-NAVD88): <b>0.06'</b>	Acceptable Core (80% recovery): Yes
Required Penetration Length: 1 ft	Core Volume Retained (gal.): <b>0.10</b>

#### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, non-cohesive, no plasticity, very soft consistency, saturated, very dark grayish brown (10YR 3/2), trace roots
0.05		MH: Organic Silt, some clay, cohesive, medium plasticity, soft consistency, wet, very dark gray (5Y 3/1), trace roots
Bottom 0.3		

Number of containers:	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<b>Hard</b>	Vibracorer:			4.0"	.50gal/ft
		<b>Push Core</b>			<b>3.5"</b>	<b>.33gal/ft</b>

Live Organisms present	Y <input checked="" type="radio"/>	N <input type="radio"/>	<p style="text-align: center;"><b>Comments</b></p> <p>Roots</p> <p>Material not retained</p>
Oil-Like Present	Y <input type="radio"/>	N <input checked="" type="radio"/>	
Odor Present	Y <input type="radio"/>	N <input checked="" type="radio"/>	
Debris Present	<b>Y</b> <input checked="" type="radio"/>	N <input type="radio"/>	
<b>Photo Numbers</b>	N/A		

Checked  
4/27/2017  
KC





**Penobscot River Mercury Study - Phase III Engineering Evaluation**  
**SEDIMENT <sup>GRAB</sup> CORE LOG**

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>K. Casey</i>
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: <i>MM + CW</i>
Date: <i>10/7/2016</i>	Time: <i>15:00</i>	Vessel: <i>Mudpuppy</i>
Coordinates: Lat <i>44.56186</i>	Long <i>-68.8574</i>	Plan Volume: <i>-</i>
Sampling Station: <i>MM - Core 103 C</i>	Deploy No. <i>-</i>	Sub-tidal Location? <input checked="" type="checkbox"/> N
Weather: <i>70° Sunny</i>	Winds: <i>0-5 knots</i>	Waters: <i>calm</i>
	Traffic: <i>None</i>	Water Temp: <i>58°F</i>
Measured Water Depth (MWD): <i>16'</i>	Core Penetration Length (ft.): <i>-</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>-</i>	
Mudline (Corrected Depth) @ NAVD88: <i>-10.59'</i>	Sample Length Retained (ft.): <i>-</i>	
Study Depth (NAVD88): <i>-</i>	Acceptable Core (80% recovery): <i>Y</i> <input checked="" type="checkbox"/> N	
Required Penetration Length: <i>-</i>	Core Volume Retained (gal.): <i>None</i>	

**All Length Measurements are in Decimal Feet**

Sample Interval (ft.)	Sample Id #	Description
Top		
Bottom		

Number of containers:	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard					4.0"	.50gal/ft
					3.5"	.33gal/ft

Live Organisms present	Y	<input checked="" type="checkbox"/> N
Oil-Like Present	Y	<input checked="" type="checkbox"/> N
Odor Present	Y	<input checked="" type="checkbox"/> N
Debris Present	Y	<input checked="" type="checkbox"/> N

Photo Numbers  
*N/A*

**Comments**

*Petite Ponar → No recovery → Hand Bottom*

*Material not retained*

*Checked  
4/27/2017  
KC*



## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/7/16	Time: 15:30	Vessel: Mud Puppy
Coordinates: Lat 44.56347	Long -68.85447	Plan Volume: 1 Gallon
Sampling Station: MM - <b>Core 104A</b>	Deploy No. 1	Sub-tidal Location? Y <input checked="" type="radio"/> N
Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: 4.5'	Core Penetration Length (ft.): 1.0	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89	Recovered Core Length (ft.): 1.0	
Mudline (Corrected Depth) @ NAVD88: <b>0.71'</b>	Sample Length Retained (ft.): <b>—</b>	
Study Depth (-NAVD88): <b>-0.29'</b>	Acceptable Core (80% recovery): Yes	
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.33	

#### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, non-cohesive, no plasticity, very soft consistency, saturated, very dark grayish brown (2.5Y 3/2), trace roots
0.1		OL: Organic Silt, trace clay, cohesive, low plasticity, soft consistency, wet, black (gley1 2.5/N)
0.7		Trace leaves, dusky red (2.5YR 3/2)
Bottom 1.0		

Number of containers:	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<input checked="" type="radio"/> Hard	Vibracorer:			4.0"	.50gal/ft
		<input checked="" type="radio"/> Push Core			3.5"	.33gal/ft
		Slambar				

Live Organisms present	Y <input checked="" type="radio"/> N	<p style="text-align: center;"><b>Comments</b></p> <p>Trace leaves</p> <p>Material not retained</p>
Oil-Like Present	Y <input checked="" type="radio"/> N	
Odor Present	Y <input checked="" type="radio"/> N	
Debris Present	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N	
<b>Photo Numbers</b>	N/A	

Checked  
 4/27/2017  
 KC





## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/7/16	Time: 15:25	Vessel: Mud Puppy
Coordinates: Lat 44.56118	Long -68.85479	Plan Volume: 1 Gallon
Sampling Station: MM - Core 104B	Deploy No. 1	Sub-tidal Location? <input checked="" type="checkbox"/> (1)
Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: 4'	Core Penetration Length (ft.): 0.4	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89	Recovered Core Length (ft.): 0.4	
Mudline (Corrected Depth) @ NAVD88: 1.21'	Sample Length Retained (ft.): -	
Study Depth (-NAVD88): 0.21'	Acceptable Core (80% recovery): Yes	
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.13	
<b>All Length Measurements are in Decimal Feet</b>		
Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silts, trace clay, trace medium sand to fine gravel, olive brown (2.5Y 4/4) and dark grayish brown (2.5Y 4/2), cohesive, low plasticity, soft consistency
↓		
Bottom 0.4		OL: Organic Silt, moderate fine sand, trace medium sand, trace fine gravel, non-cohesive, no plasticity, soft consistency, olive brown (2.5Y 4/4), trace roots
Number of containers:	<input checked="" type="checkbox"/> bucket	<input checked="" type="checkbox"/> liner bag
	<input checked="" type="checkbox"/> jar	<input checked="" type="checkbox"/> other
Type of container:	Core Volumes	
Liner Type: Soft	Nominal core-barrel diameter	EST. Volume
<input checked="" type="radio"/> Hard	4.0"	.50gal/ft
Vibracorer: Push Corer	3.5"	.33gal/ft
	Slambar	
Live Organisms present	<b>Comments</b>  Trace roots   Material not retained	
Oil-Like Present		
Odor Present		
Debris Present		
Photo Numbers		
N/A		

Checked  
 4/27/2017  
 KC



amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

<sup>GRAB</sup>  
SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: K. Casey
Sub: <del>AquaSurvey</del>	WO: 8 <del>Geophysical</del>	Crew: MM + CW
Date: 10/7/2016	Time: 1535	Vessel: MWD SUPPLY
Coordinates: Lat 44.56139	Long -68.8548	Plan Volume: -
Sampling Station: MM - Core 104C	Deploy No. 1	Sub-tidal Location? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Weather: 70° Sunny	Winds: 0-5 knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth (MWD): 13'	Core Penetration Length (ft.): -	
Correction to NAVD88 (+/- ft. from NAVD88): -5.99'	Recovered Core Length (ft.): -	
Mudline (Corrected Depth) @ NAVD88: -7.47'	Sample Length Retained (ft.): -	
Study Depth (NAVD88): -7.57'	Acceptable Core (80% recovery): Y <input checked="" type="checkbox"/> N	
Required Penetration Length: -	Core Volume Retained (gal.): None	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample ID #	Description
Top	Retrieval	
1	30%	medium sand / moderate silts moderate fine sand / well graded / very loose / some leaves / trace BARK
Bottom		

Number of containers:	-	-	-	-	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard	Vibracorer: P3 P5 VT6 Other				4.0"	.50gal/ft
	Push Corer				3.5"	.33gal/ft

Live Organisms present	Y <input checked="" type="checkbox"/> N	<p>Comments</p> <p>Grab Sample - some leaves Bark Petite Ponds Material not retained</p>
Oil-Like Present	Y <input type="checkbox"/> N	
Odor Present	Y <input type="checkbox"/> N	
Debris Present	Y <input checked="" type="checkbox"/> N	
Photo Numbers	N/A	

Checked  
4/27/2017  
KC





Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: K. Carey  
 Sub: AquaSurvey WO: 3 - Geophysical Crew: M/T + CHRIS  
 Date: 10/7/16 Time: 1550 Vessel: Mud puppy  
 Coordinates: Lat No GPS Point Long Plan Volume: 1 Gallon  
 Sampling Station: MM-COE 105A Deploy No. 1 Sub-Ideal Location? Y (N)  
 Weather: 70°F Sunny Winds: 0-5 knots Waters: Calm Traffic: None Water Temp: 58°F  
 Measured Water Depth (MWD): 5' Core Penetration Length (ft.): 0.6  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.89' Recovered Core Length (ft.): 0.6  
 Mudline (Corrected Depth) @ NAVD88: 0.11' Sample Length Retained (ft.): -  
 Study Depth (NAVD88): -0.89' Acceptable Core (80% recovery): Y (N)  
 Required Penetration Length: 1' Core Volume Retained (gal.): 0.20

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0	I	Silt / moderate clay / trace coarse sand / trace fine sand
		trace medium sand / coh / low plas soft coh. / SAT / 5Y5/2
3		Clay / moderate silt / med plas / coh / med stiff / wet / 5Y6/2
Bottom 6		same / non plastic / stiff

Number of containers: —	Core Volumes
Type of container: bucket	Nominal core-barrel diameter
Liner Type: Soft (Hard)	EST. Volume
Vibracorer: P3 P5 VT6 Other	4.0" .50 gal/ft
Push Corer	Slambar 3.5" .33 gal/ft
Live Organisms present Y (N)	Comments
Oil-Like Present Y (N)	
Odor Present Y (N)	
Debris Present Y (N)	
Photo Numbers	
N/A	Material not retained

Checked 4/27/2017 KC



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: K. Casey
Sub:	WO:	Crew: MM, CW
Date: 10/7/16	Time: 15:45	Vessel: Mud Puppy
Coordinates: Lat 44.56352 Long -68.85393	Plan Volume: 1 Gallon	
Sampling Station: MM - <b>Core 105B</b>	Deploy No. 1	Sub-tidal Location? <b>Y</b> <input checked="" type="radio"/>
Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: 4'	Core Penetration Length (ft.): 0.7	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 0.7	
Mudline (Corrected Depth) @ NAVD88: <b>1.11'</b>	Sample Length Retained (ft.): <b>—</b>	
Study Depth (-NAVD88): <b>0.41'</b>	Acceptable Core (80% recovery): Yes	
Required Penetration Length: 1 ft	Core Volume Retained (gal.): <b>0.23</b>	

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, non-cohesive, no plasticity, very soft consistency, saturated, dark olive gray (5Y 3/2), moderate twig, moderate roots, 1 polychaete
0.2		OL: Organic Silt, cohesive, no plasticity, soft consistency, saturated, moderate roots and twigs, very dark grayish brown (10YR 3/2), sulfur like odor
Bottom 0.7		

Number of containers:	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<b>Hard</b>	Vibracorer:			4.0"	.50gal/ft
		<b>Push Corer</b>			3.5"	<b>.33gal/ft</b>

Live Organisms present	<input checked="" type="radio"/> Y <input type="radio"/> N	Polychaete	<b>Comments</b>
Oil-Like Present	<input type="radio"/> Y <input checked="" type="radio"/> N		
Odor Present	<input checked="" type="radio"/> Y <input type="radio"/> N	Sulfur like odor	
Debris Present	<input checked="" type="radio"/> Y <input type="radio"/> N	Moderate roots and twigs	
<b>Photo Numbers</b>	N/A		
	Material not retained		

*Checked  
4/27/2017  
KC*





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

<sup>GROB</sup>  
SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>K. Casey</u>
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: <u>M. Marting, C. Williams</u>
Date: <u>10/7/2016</u>	Time: <u>16:10</u>	Vessel: <u>Mud puppy</u>
Coordinates: Lat <u>44.56347</u>	Long <u>-68.8542</u>	Plan Volume: <u>1</u>
Sampling Station: <u>MM-core 1 OSC</u>	Deploy No. <u>---</u>	Sub-tidal Location? <input checked="" type="checkbox"/> N
Weather: <u>70° Sunny</u>	Winds: <u>0-5 Knots</u>	Waters: <u>Calm</u>
	Traffic: <u>None</u>	Water Temp: <u>58°F</u>
Measured Water Depth (MWD): <u>13'</u>	Core Penetration Length (ft.): <u>---</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.89'</u>	Recovered Core Length (ft.): <u>---</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-7.89'</u>	Sample Length Retained (ft.): <u>---</u>	
Study Depth (NAVD88): <u>---</u>	Acceptable Core (80% recovery): <input checked="" type="checkbox"/> N	
Required Penetration Length: <u>---</u>	Core Volume Retained (gal.): <u>None</u>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top		PR MD Med. Sand; Some FV Sand, silt Coarse sand Poor Graded; Very loose; SAT
		10PR 4/2
Bottom		

Number of containers:	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard					4.0"	.50gal/ft
					3.5"	.33gal/ft

Live Organisms present	Y <input checked="" type="checkbox"/> N	Comments <u>Petite Ponar</u>  <u>Material not retained</u>
Oil-Like Present	Y <input checked="" type="checkbox"/> N	
Odor Present	Y <input checked="" type="checkbox"/> N	
Debris Present	Y <input checked="" type="checkbox"/> N	
Photo Numbers	<u>N/A</u>	

Checked  
4/27/2017  
KC



## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin
Sub:	WO:	Crew: KC, CW
Date: 10/7/16	Time: 16:25	Vessel: Mud Puppy
Coordinates: <b>Lat</b> 44.56347	<b>Long</b> -68.85180	Plan Volume: 1 Gallon
Sampling Station: <b>MM-Core 106B</b>	Deploy No. 1	Sub-tidal Location? <b>Y</b> <input checked="" type="radio"/>

Weather: 75°F Sunny	Winds: 0-5 Knots	Waters: Calm	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: 1.5	Core Penetration Length (ft.): 1.0			
Correction to NAVD88 (+/- ft. from NAVD88): -5.89	Recovered Core Length (ft.): 1.0			
Mudline (Corrected Depth) @ NAVD88: <b>3.61'</b>	Sample Length Retained (ft.): <b>—</b>			
Study Depth (-NAVD88): <b>2.61'</b>	Acceptable Core (80% recovery): Yes			
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.33			

**All Length Measurements are in Decimal Feet**

Sample Interval (ft.)	Sample Id #	Description
Top 0'		OL: Organic Silt, cohesive, no plasticity, soft consistency, saturated, black (10YR 2/1), some roots and leaves
0.4		OL: Organic Silt, cohesive, no plasticity, soft consistency, saturated, dark grayish brown (10YR 4/2), some roots and leaves
Bottom 1'		

Number of containers:	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<input checked="" type="radio"/> Hard	Vibracorer: <b>Push Core</b>		Slambar	4.0"	.50gal/ft
					<b>3.5"</b>	<b>.33gal/ft</b>

Live Organisms present	Y <input checked="" type="radio"/> N	<p style="text-align: center;"><b>Comments</b></p> <p>Roots and twigs</p> <p>Material not retained</p>
Oil-Like Present	Y <input checked="" type="radio"/> N	
Odor Present	Y <input checked="" type="radio"/> N	
Debris Present	<input checked="" type="radio"/> Y <input type="radio"/> N	
<b>Photo Numbers</b>	N/A	

Checked  
4/27/2017  
KC





**Penobscot River Mercury Study - Phase III Engineering Evaluation**  
**SEDIMENT <sup>Grab</sup> CORE LOG**

Owner: USDC, District of Maine      Project No. 3616166052      Logger: **K. Casey**  
 Sub: ~~AquaSurvey~~      WO: ~~Geophysical~~      Crew: **MM + CWJ**  
 Date: **10/7/2016**      Time: **16:32**      Vessel: **Mudpuppy**

Coord nates: Lat **44.56359**      Long **-68.8515**      Plan Volume: **-**

Sampling Station: **MM-Core 106C**      Deploy No. **-**      Sub-tidal Location?  Y  N

Weather: **70° Sunny**      Winds: **0-5 knots**      Waters: **Calm**      Traffic: **None**      Water Temp: **56°**

Measured Water Depth [MWD]: <b>11'</b>	Core Penetration Length (ft.): <b>-</b>
Correction to NAVD88 (+/- ft. from NAVD88): <b>-5.89'</b>	Recovered Core Length (ft.): <b>-</b>
Mudline (Corrected Depth) @ NAVD88: <b>-6.06'</b>	Sample Length Retained (ft.): <b>-</b>
Study Depth (NAVD88): <b>-</b>	Acceptable Core (80% recovery): <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Required Penetration Length: <b>-</b>	Core Volume Retained (gal.): <b>None</b>

**All Length Measurements are in Decimal Feet**

Sample Interval (ft.)	Sample Id #	Description
Top		<b>PRDM med sand; some coarse sand, F/V sand, silt</b>
		<b>Poorly Graded, loosely dense, Wet</b>
		<b>10YR 4/2</b>
Bottom		

Number of containers:	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard					4.0"	.50gal/ft
					<b>3.5"</b>	<b>.33gal/ft</b>

Live Organisms present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	<b>Comments</b> <b>Petite Ponar</b>  <b>Material not retained</b>
Oil-Like Present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Odor Present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Debris Present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Photo Numbers	<b>N/A</b>	

*Checked 4/27/2017 KC*



## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin
Sub:	WO:	Crew: KC, CW
Date: 10/7/16	Time: 16:50	Vessel: Mud Puppy
Coordinates: Lat 44.56108	Long -68.85374	Plan Volume: 1 Gallon
Sampling Station: MM-Core 107A	Deploy No. 1	Sub-tidal Location? Y <input checked="" type="radio"/>
Weather: 70°F Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: 5'	Core Penetration Length (ft.): 0.5	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 0.5	
Mudline (Corrected Depth) @ NAVD88: -0.14'	Sample Length Retained (ft.): -	
Study Depth (-NAVD88): -0.64'	Acceptable Core (80% recovery): Yes	
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.17	

#### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, non-cohesive, no plasticity, soft consistency, saturated, black (10YR 2/1)
0.4		OL: Organic Silt, non-cohesive, no plasticity, soft consistency, saturated, black (10YR 2/1), trace roots, trace sulfur like odor
Bottom 0.5		

Number of containers:	-	-	-	-	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4.0"	.50gal/ft
	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3.5"	.33gal/ft

Live Organisms present	Y <input checked="" type="radio"/> N <input type="radio"/>	<b>Comments</b>  Trace sulfur like odor Trace roots  Material not retained
Oil-Like Present	Y <input type="radio"/> N <input checked="" type="radio"/>	
Odor Present	Y <input checked="" type="radio"/> N <input type="radio"/>	
Debris Present	Y <input checked="" type="radio"/> N <input type="radio"/>	
<b>Photo Numbers</b>	N/A	

Checked  
 4/27/2017  
 KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner:	USDC, District of Maine	Project No.:	3616166052	Logger:	M. Martin	
Sub:		WO:		Crew:	KC, CW	
	Date:	10/7/16	Time :	16:40 <sup>50</sup>	Vessel:	Mud Puppy
Coordinates: Lat	44.56104	Long	-68.85325	Plan Volume:	1 Gallon	
Sampling Station:	MM - Core 107B	Deploy No.	1	Sub-tidal Location?	Y <input checked="" type="radio"/> N	
Weather:	75°F Sunny	Winds:	0-5 Knots	Waters:	Calm	
		Traffic:	None	Water Temp:	58°F	
Measured Water Depth [NAVD88]:	5'	Core Penetration Length (ft.):	1.0			
Correction to NAVD88 (+/- ft. from NAVD88):	-5.89'	Recovered Core Length (ft.):	1.0			
Mudline (Corrected Depth) @ NAVD88:	-0.39'	Sample Length Retained (ft.):	—			
Study Depth (-NAVD88):	-1.39'	Acceptable Core (80% recovery):	Yes			
Required Penetration Length:	1.0'	Core Volume Retained (gal.):	0.330			

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, non-cohesive, no plasticity, very soft consistency, saturated, black (10YR 2/1), trace roots, moderate sulfur like odor
0.1		OL: Organic Silt, trace clay, cohesive, low plasticity, soft consistency, wet, black (10YR 2/1), trace roots and twigs, moderate sulfur like odor
0.6		MH: Organic Silt, trace clay, cohesive, medium plasticity, soft consistency, wet, black (10YR 2/1), trace roots and twigs, moderate sulfur like odor
0.8		MH: Organic Clay, some silt, cohesive, medium plasticity, medium stiff consistency, wet, black 10YR 2/1), trace roots and twigs, moderate sulfur like odor
Bottom 1.0		

Number of containers:	—	—	—	—	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<input checked="" type="radio"/> Hard	Vibracorer:			4.0"	.50gal/ft
		<input checked="" type="radio"/> Push Corer			3.5"	.33gal/ft
		Slambar				

Live Organisms present	Y <input checked="" type="radio"/> N	<b>Comments</b> Moderate sulfur like odor Trace roots and twigs  Material not retained
Oil-Like Present	Y <input checked="" type="radio"/> N	
Odor Present	Y <input checked="" type="radio"/> N	
Debris Present	Y <input checked="" type="radio"/> N	
<b>Photo Numbers</b>	N/A	

Checked  
4/27/2017  
KC



amec  
foster  
wheeler

**Penobscot River Mercury Study - Phase III Engineering Evaluation**  
**SEDIMENT CORE LOG**

Owner: USDC, District of Maine      Project No. 3616166052      Logger: M. Martin  
 Sub. ~~AquaSurvey~~      WO: ~~S - Geophysical~~      Crew: KC + CW  
 Date: 10/7/2016      Time: 17:05      Vessel: Mudpuppy  
 Coordinates: Lat 44.56108      Long -68.8534      Plan Volume: —  
 Sampling Station: MM-Cone 107C      Deploy No. —      Sub-tidal Location?  N  
 Weather: 70° Sunny      Winds: 0-5 Knots      Waters: Calm      Traffic: None      Water Temp: 58°F  
 Measured Water Depth (MWD): 9'      Core Penetration Length (ft.): —  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.891'      Recovered Core Length (ft.): —  
 Mudline (Corrected Depth) @ NAVD88: -4.64'      Sample Length Retained (ft.): —  
 Study Depth (NAVD88): —      Acceptable Core (80% recovery):  N  
 Required Penetration Length: —      Core Volume Retained (gal.): None

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top		Silt, TR med Sand, coh, non-plas, soft, SAT, 10% R 3/4, TR Twigs
Bottom		

Number of containers:	—	—	—	—	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard	Vibracorer: P3 P5 VT6 Other				4.0"	.50gal/ft
	Push Corer			Slambar	3.5"	.33gal/ft

Live Organisms present	Y <input checked="" type="checkbox"/> N	Comments Petite Ponar TR twigs Material not retained.
Oil-Like Present	Y <input checked="" type="checkbox"/> N	
Odor Present	Y <input checked="" type="checkbox"/> N	
Debris Present	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Photo Numbers	N/A	

Checked  
4/27/2017  
KC





# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin
Sub:	WO:	Crew: KC, CW
Date: 10/7/16	Time: 17:12	Vessel: Mud Puppy
Coordinates: Lat 44.56087 Long -68.85674	Plan Volume: 1 Gallons	
Sampling Station: MM-Core 108A	Deploy No. 1	Sub-tidal Location? <input checked="" type="radio"/> Y <input type="radio"/> N
Weather: 75°F Sunny	Winds: 0-5 Knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: 3'	Core Penetration Length (ft.): 1.0	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 1.0	
Mudline (Corrected Depth) @ NAVD88: 1.36'	Sample Length Retained (ft.): -	
Study Depth (-NAVD88): 0.36'	Acceptable Core (80% recovery): Yes	
Required Penetration Length: 1 ft	Core Volume Retained (gal.): 0.33	

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, trace fine sand, non-cohesive, no plasticity, very soft consistency, saturated, black (10YR 2/1), some roots
0.4		MH: Organic Silt, cohesive, medium plasticity, soft consistency, saturated, dark gray (10YR 4/1), trace roots and leaves
0.8		MH: Organic Silt, trace clay, cohesive, medium plasticity, soft consistency, saturated, dark gray (10YR 4/1), trace roots and leaves
Bottom 1.0		

Number of containers:	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft	<u>Hard</u>	Vibracorer: <u>Push Corer</u>			4.0"	50gal/ft
		Slambar			<u>3.5"</u>	<u>.33gal/ft</u>

Live Organisms present	Y <input type="radio"/> N <input checked="" type="radio"/>
Oil-Like Present	Y <input type="radio"/> N <input checked="" type="radio"/>
Odor Present	Y <input type="radio"/> N <input checked="" type="radio"/>
Debris Present	<u>Y</u> <input type="radio"/> N <input type="radio"/>

**Comments**

Some roots; Trace twigs and leaves

Material not retained

**Photo Numbers**

N/A

Checked  
4/27/2017  
KC



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner:	USDC, District of Maine	Project No.:	3616166052	Logger:	M. Martin				
Sub:		WO:		Crew:	KC, CW				
	Date:	10/7/16	Time:	17:18	Vessel:	Mud Puppy			
Coordinates:	Lat	44.56110	Long	-68.85661	Plan Volume:	1 Gallon			
Sampling Station:	MM - <b>Core 108B</b>		Deploy No.	1	Sub-tidal Location?	Y <input type="radio"/> N <input checked="" type="radio"/>			
Weather:	75°F Sunny	Winds:	0-5 Knots	Waters:	Calm	Traffic:	None	Water Temp:	58°F
Measured Water Depth [NAVD88]:		5'		Core Penetration Length (ft.):		1.0			
Correction to NAVD88 (+/- ft. from NAVD88):		-5.89'		Recovered Core Length (ft.):		1.0			
Mudline (Corrected Depth) @ NAVD88:		<b>-0.64'</b>		Sample Length Retained (ft.):		<b>—</b>			
Study Depth (-NAVD88):		<b>-1.64'</b>		Acceptable Core (80% recovery):		Yes			
Required Penetration Length:		1 ft		Core Volume Retained (gal.):		0.33			

### All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top 0.0		OL: Organic Silt, trace clay, non-cohesive, no plasticity, very soft consistency, saturated, very dark grayish brown (10YR 3/2)
0.3		OL: Organic Silt, trace clay, cohesive, no plasticity, soft consistency, saturated, black (10YR 2/1)
0.6		OL: Organic Clay, trace silt, cohesive, low plasticity, medium stiff consistency, wet, dark gray (10YR 4/1)
Bottom 1.0		

Number of containers:	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	Core Volumes		
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume	
Liner Type: Soft	<input checked="" type="radio"/> Hard	Vibratorer:			4.0"	.50gal/ft	
		<input checked="" type="radio"/> Push Corer			Slambar	<b>3.5"</b>	<b>.33gal/ft</b>

Live Organisms present	Y	<input checked="" type="radio"/> N
Oil-Like Present	Y	<input checked="" type="radio"/> N
Odor Present	Y	<input checked="" type="radio"/> N
Debris Present	Y	<input checked="" type="radio"/> N

**Photo Numbers**  
N/A

**Comments**  
  
Material not retained

*Checked  
4/27/2017  
KC*





amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

~~SEDIMENT CORE LOG~~  
Grab Log

Owner: USDC, District of Maine	Project No. 3616166052	Logger: M. Martin
Sub: <del>AquaSurvey</del>	WO: 3 - <del>Geophysical</del>	Crew: K. Casey + Chris W.
Date: 10/7/2016	Time: 17:25	Vessel: Mud Poppy
Coordinates: Lat 44.56100418	Long -68.8567128	Plan Volume: 1
Sampling Station: MM-Core 108C	Deploy No. —	Sub-tidal Location? <input checked="" type="checkbox"/> N
Weather: 70° sunny	Winds: 0-5 knots	Waters: calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth (MWD): 11'	Core Penetration Length (ft.): —	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): —	
Mudline (Corrected Depth) @ NAVD88: -12.29'	Sample Length Retained (ft.): —	
Study Depth (NAVD88): -12.62'	Acceptable Core (80% recovery): <input checked="" type="checkbox"/> N	
Required Penetration Length: —	Core Volume Retained (gal.): None	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
Top	100% Recovery	Silt, TR FNSand, <sup>non-</sup> coh, non-plus, Very soft, SAT, 10YR 2/1, TR Sulfur like odor, Poly, TR twigs
Bottom		

Number of containers:	—	—	—	—	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft Hard	Vibracorer: P3 P5 VT6 Other				4.0"	.50gal/ft
	Push Corer Slambar				3.5"	.33gal/ft

Live Organisms present	<input checked="" type="checkbox"/> N	Comments  Petite Pomar  Material not retained
Oil-Like Present	<input checked="" type="checkbox"/> N	
Odor Present	<input checked="" type="checkbox"/> N	
Debris Present	<input checked="" type="checkbox"/> N	
Photo Numbers	N/A	

Checked  
4/27/2017  
KC

Karina Casey 10/13/16  
Field reviewed



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wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: *Walt Martin*  
 Sub: ~~AquaSurvey~~ WO: ~~3-Geophysical~~ Crew: *L Casent Chris V*  
 Date: *10/8/2016* Time: *16:05* Vessel: *Mud Puppy*  
 Coordinates: Lat *44.574591751* Long *-68.8542428* Plan Volume: *1.1 gallon*  
 Sampling Station: *MMA-Core 200A* Deploy No. *—* Sub-tidal Location? Y  N

Weather: *70° Sunny* Winds: *5-10 knots* Waters: *Calm* Traffic: *None* Water Temp: *58°*

Measured Water Depth (MWD):	<i>2.0'</i>	Core Penetration Length (ft.):	<i>0.8'</i>
Correction to NAVD88 (+/-ft. from NAVD88):	<i>-5.80'</i>	Recovered Core Length (ft.):	<i>0.8'</i>
Mudline (Corrected Depth)@NAVD88:	<i>3.26'</i>	Sample Length Retained (ft.):	<i>—</i>
Study Depth (NAVD88):	<i>2.46'</i>	Acceptable Core (80% recovery):	<input checked="" type="checkbox"/> N
Required Penetration Length:	<i>1.0'</i>	Core Volume Retained (gal.):	<i>0.264</i>

All Length Measurements are in Decimal Feet

Sample Interval (ft)	Sample #	Description
0' - Top		<i>Silt, coh, low-plas, soft, wet, 10YR 2/1</i>
0.2'		<i>No odor, trace roots</i>
0.4'		<i>same</i>
0.6'		<i>same, wet, 10YR 4/2</i>
0.8' - Bottom		

Number of containers:	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <input checked="" type="checkbox"/> Hard	Vibrator: <i>P3 P5V76</i> Other				<i>4.0"</i>	<i>0.33 gal/ft</i>
	<i>Flush Core</i>				<del><i>3.5"</i></del>	<del><i>0.33 gal/ft</i></del>

Live Organisms present Y  N  
 Oil-Like Present Y  N  
 Odor Present Y  N  
 Debris Present  N *trace roots*

Photo Numbers  
*N/A*

Comments *3.5' 0.33 gal/ft*

*Material not retained*

*Checked  
4/27/2017  
KC*

*Karina Casey 10/13/2016  
Field reviewed*





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# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Matt Martin</i>
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: <i>K. Casey + Chris W.</i>
Date: <i>10/13/2016</i>	Time: <i>16:10</i>	Vessel: <i>Mod Poppy</i>
Coordinates: Lat <i>44.57438451</i>	Long <i>-68.8559155</i>	Plan Volume: <i>2 gallon</i>
Sampling Station: <i>MM-Cor 200b</i>	Deploy No. <i>—</i>	Sub-tidal Location? <i>Y (N)</i>
Weather: <i>70° sunny</i>	Winds: <i>5-10' knots</i>	Waters: <i>Calm</i>
Traffic: <i>None</i>	Water Temp: <i>58°F</i>	
Measured Water Depth [MWD]: <i>2.0'</i>	Core Penetration Length (ft.): <i>0.4'</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>0.4'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>3.34'</i>	Sample Length Retained (ft.): <i>—</i>	
Study Depth (NAVD88): <i>2.94'</i>	Acceptable Core (80% recovery): <i>(Y) N</i>	
Required Penetration Length: <i>1.0'</i>	Core Volume Retained (gal.): <i>0.13</i>	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
0'		
0.1'		silt, non-coh, non-plas, very soft, soft, 10% RZ/1
		trace sulfur, trace roots
0.4'		clay, trace silt, coh, plas, wet, 10% RZ/1
		Polychaete, No odor
Bottom		

Number of containers:	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <i>(Hard)</i>	Vibracorer: P3 P5 VT6 Other				4.0"	.50gal/ft
	Push Core			Slambar	3.5"	.33gal/ft
Live Organisms present	<i>(Y) N</i>	Polychaete		Comments		
Oil-Like Present	<i>Y (N)</i>	trace sulfur				
Odor Present	<i>(Y) N</i>	trace roots				
Debris Present	<i>(Y) N</i>					
Photo Numbers	N/A					
<i>Material not retained</i>						

*Checked  
4/27/2017  
KC*

*Karina Casey  
10/13/2016  
field reviewed*



## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No.: 3616166052	Logger: M. Martin
Sub:	WO:	Crew: KC, CW
Date: 10/8/16	Time: 10:34	Vessel: Mud Puppy
Coordinates: Lat 44.57755168	Long -68.8552915	Plan Volume: 1'
Sampling Station: MM-Core 201A	Deploy No. 1	Sub-tidal Location? Y (N)
Weather: 65° Sunny	Winds: 5-10 knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth [NAVD88]: -	Core Penetration Length (ft.): 0.4'	
Correction to NAVD88 (+/- ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 0.4'	
Mudline (Corrected Depth) @ NAVD88: -3.89'	Sample Length Retained (ft.): -	
Study Depth (-NAVD88): -4.29'	Acceptable Core (80% recovery): NO	
Required Penetration Length: 1'	Core Volume Retained (gal.): 0.13	
<b>All Length Measurements are in Decimal Feet</b>		
Sample Interval (ft.)	Sample Id #	Description
Top 0'		Silt, cohesive, medium plasticity, soft, saturated, 10YR 4/2, polychaete, clam, trace roots
↓		
Bottom 0.4'		
Number of containers: —		Core Volumes
Type of container: bucket	liner bag	Nominal core-barrel diameter
Liner Type: Soft (Hard)	Vibracorer: Push Corer	EST. Volume
	Slambar	4.0" → 0.50 gal/ft
		3.5" → 0.33 gal/ft
Live Organisms present (Y) (N)	polychaete	<b>Comments:</b>  Material not retained
Oil-Like Present (Y) (N)		
Odor Present (Y) (N)		
Debris Present (Y) (N)	trace roots	
<b>Photo Numbers</b> N/A		

Checked  
4/27/2017  
KC





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# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Matt Matic</i>
Sub: <del>AquaSurvey</del>	WO: <del>3-Geophysical</del>	Crew: <i>K. Casey + Chris W</i>
Date: <i>10/13/2016</i>	Time: <i>16:47</i>	Vessel: <i>Mudpuppy</i>
Coordinates: Lat <i>44.51751637</i>	Long <i>-68.8516647</i>	Plan Volume: <i>1 gallon</i>
Sampling Station: <i>MM-Core 2016</i>	Deploy No. <i>—</i>	Sub-tidal Location? Y (N)
Weather: <i>70°C, W, N</i>	Winds: <i>5-10 knots</i>	Waters: <i>calm</i>
	Traffic: <i>None</i>	Water Temp: <i>58°F</i>

Measured Water Depth (MWD): <i>2.0'</i>	Core Penetration Length (ft.): <i>1.2'</i>
Correction to NAVD88 (+/-ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>1.2'</i>
Mudline (Corrected Depth)@ NAVD88: <i>3.11'</i>	Sample Length Retained (ft.): <i>—</i>
Study Depth (NAVD88): <i>1.91'</i>	Acceptable Core (80% recovery): <i>(Y) N</i>
Required Penetration Length: <i>1.0'</i>	Core Volume Retained (gal.): <i>0.40</i>

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
0' - 0.2'		silt, non-coh, non-plas, soft, sat, 10% R 3/1
0.2' - 0.4'		trace roots, polychaete
0.4' - 0.6'		same, trace clay, calc low-plas, soft, sat, 10% R 3/1
0.6' - 0.8'		trace roots, clam
0.8' - 1.0'		same, 10% R 4/1
1.0' - 1.2'		same
Bottom		

Number of containers: <i>—</i>	Core Volumes
Type of container: bucket	Nominal core-barrel diameter
Line Type: Soft <i>(Hard)</i>	EST. Volume
Wrap: <i>P3 P5 VT6 Other</i>	40" <i>50 gal/ft</i>
Push Core?	<i>3.5" 3.5" 1.5 gal/ft</i>

Live Organisms present <i>(Y) N</i>	Clam, polychaete trace roots Material not retained
Oil-Like Present <i>Y (N)</i>	
Odor Present <i>Y (N)</i>	
Debris Present <i>(Y) N</i>	
Photo Numbers	
<i>N/A</i>	

*Checked  
4/27/2017  
KC*

*Karina Casey 10/13/16  
field reviewed*



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wheeler

# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Mark Martin</i>
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: <i>Karina C. + Chris W.</i>
Date: <i>10/8/2016</i>	Time: <i>17:11</i>	Vessel: <i>M. Idawapi</i>
Coordinates: Lat <i>44.56094</i>	Long <i>-68.8556</i>	Plan Volume: <i>1 gallon</i>
Sampling Station: <i>M.M-Core 2.02a</i>	Deploy No. <i>—</i>	Sub-tidal Location? Y <input checked="" type="checkbox"/> N
Weather: <i>65°F</i>	Winds: <i>5-10knts</i>	Waters: <i>Calm</i>
Traffic: <i>None</i>	Water Temp: <i>58°F</i>	
Measured Water Depth (MWD): <i>2'</i>	Core Penetration Length (ft.): <i>0.5'</i>	
Correction to NAVD88 (+/- ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>0.5'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>2.61'</i>	Sample Length Retained (ft.): <i>—</i>	
Study Depth (NAVD88): <i>2.11'</i>	Acceptable Core (80% recovery): <input checked="" type="checkbox"/> N	
Required Penetration Length: <i>2.0'</i>	Core Volume Retained (gal.): <i>0.17</i>	

All Length Measurements are in Decimal Feet

0.1'  
0.1'  
0.5'

Sample Interval (ft.)	Sample Id #	Description
Top		<i>silt, non-clth, non-plas, very soft, sat</i>
		<i>10% 4/2</i>
		<i>same, coh, low-plas, soft, sat, 10% 3/1</i>
		<i>trace sulfur odor, twigs &amp; roots</i>
Bottom		

Number of containers:	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <input checked="" type="checkbox"/> Hard	Vibracorer: P3 P5 VT6 Other				4.0"	.50gal/ft
	Push Corer				<i>2.5 3.5</i>	<i>33gal/ft</i>

Live Organisms present	Y <input checked="" type="checkbox"/> N	Comments <i>trace sulfur + twigs &amp; roots</i>
Oil-Like Present	Y <input checked="" type="checkbox"/> N	
Odor Present	<input checked="" type="checkbox"/> N	
Debris Present	<input checked="" type="checkbox"/> N	
Photo Numbers	<i>N/A</i>	<i>Material not retained</i>

*Checked  
4/27/2017  
KC*

*Karina Casey 10/13/16  
Field reviewed*





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wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT CORE LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: *Matt Martin*  
 Sub: ~~AquaSurvey~~ WO: ~~3 - Geophysical~~ Crew: *Karina C. + Chris W.*  
 Date: *10/8/2016* Time: *17:17* Vessel: *Muduppy*  
 Coordinates: Lat *44.58061068* Long *-68.8572335* Plan Volume: *1 gallon*  
 Sampling Station: *MM Core 202b* Deploy No. *—* Sub-tidal Location? Y  N  
 Weather: *65°F* Winds: *5-10 knots* Waters: *calm* Traffic: *None* Water Temp: *58.0°F*  
 Measured Water Depth [MWD]: *2'* Core Penetration Length (ft.): *1.2'*  
 Correction to NAVD88 (+/-ft. from NAVD88): *-5.80'* Recovered Core Length (ft.): *1.2'*  
 Mudline (Corrected Depth)@ NAVD88: *2.61'* Sample Length Retained (ft.): *—*  
 Study Depth (NAVD88): *1.41'* Acceptable Core (80% recovery):  Y  N  
 Required Penetration Length: *1.0'* Core Volume Retained (gal.): *0.40*

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
0' Top		silt, non-coh, non-plas, very soft, sand, 10YR 3/2
0.1'		clay
0.4'		same, 10YR 2/1, polychaete, coh
0.8'		same, coh, low-plas, /
1.0'		Sand, trace roots
1.2' Bottom		same

Number of containers:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Core Volumes		
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume	
Liner Type: Soft <input checked="" type="checkbox"/> Hard <input type="checkbox"/>	Vib. Cor. P3 P5VT6 Other			Slambar	4.0"	3 gal	
	Push Corer				3.5" 3.5"	3 gal/ft	
Live Organisms present	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	<i>polychaete, clam</i>				Comments	
Oil-Like Present	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N						
Odor Present	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N						
Debris Present	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	<i>trace roots</i>					
Photo Numbers	N/A						

*No material not retained*

*Checked  
4/27/2017  
KC*

*Karina Casey 10/13/16  
Field reviewed*







**Penobscot River Mercury Study - Phase III Engineering Evaluation**  
**SEDIMENT CORE LOG**

Owner: USDC, District of Maine	Project No. 3616166052	Logger: Matt Martin
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: Chris W.
Date: 10/13/2016	Time: 15:50	Vessel: 1 Mad puppy
Coordinates: Lat 44.58509001	Long -66.8592191	Plan Volume: 1 gallon
Sampling Station: MM - Core 2035	Deploy No. —	Sub-tidal Location? Y (N)
Weather: 70° sunny	Winds: 5-10 knots	Waters: Calm
	Traffic: None	Water Temp: 58°F
Measured Water Depth [MWD]: 2'	Core Penetration Length (ft.): 1'	
Correction to NAVD88 (+/-ft. from NAVD88): -5.89'	Recovered Core Length (ft.): 1'	
Mudline (Corrected Depth) @ NAVD88: 3.11'	Sample Length Retained (ft.): —	
Study Depth (NAVD88): 2.11'	Acceptable Core (80% recovery): (Y) N	
Required Penetration Length: 1.0'	Core Volume Retained (gal.): 0.33	

All Length Measurements are in Decimal Feet

Sample Interval (ft.)	Sample Id #	Description
0' Top		silt, non-coh, non plas, very soft, sat, 10% 2/1
0.3'		living organisms, polychaete
		same, trace roots, polychaete
0.6'		same, med sulfur odor
1.0' Bottom		

Number of containers:	—	—	—	—	Core Volumes		
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume	
Liner Type: Soft <input checked="" type="radio"/> Hard	Vibracorer: P3 P5 VT6 Other				4.0"	.50gal/ft	
	Push Corer				3.5" <u>3.5"</u>	.33gal/ft	
Live Organisms present	<input checked="" type="radio"/> Y <input type="radio"/> N	polychaete & others				Comments	
Oil-Like Present	<input type="radio"/> Y <input checked="" type="radio"/> N	med sulfur					
Odor Present	<input checked="" type="radio"/> Y <input type="radio"/> N	roots					
Debris Present	<input checked="" type="radio"/> Y <input type="radio"/> N						
Photo Numbers	N/A						
Material not retained							

Checked  
4/27/2017  
KC

Karina Casey 10/13/16  
Field reviewed



**P enobscot River Mercury Study - Phase III Engineering Evaluation**

**SEDIMENT CORE LOG**

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Matt Martin</i>
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: <i>Chris W.</i>
Date: <i>10/13/2016</i>	Time: <i>16:52</i>	Vessel: <i>Mudpuppy</i>
Coordinates Lat <i>44.59712234</i>	Long <i>-68.8570925</i>	Plan Volume: <i>1'</i>
Sampling Station: <i>MM - Core - T01</i>	Deploy No. <i>—</i>	Sub-tidal Location? Y (N)
Weather: <i>65°F</i>	Winds: <i>5-10kts</i>	Waters: <i>Calm</i>
Traffic: <i>None</i>	Water Temp: <i>58°F</i>	
Measured Water Depth (MWD): <i>1.5'</i>	Core Penetration Length (ft.): <i>1.0'</i>	
Correction to NAVD88 (+/-ft.from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>1.0'</i>	
Mudline (Corrected Depth)@ NAVD88: <i>3.36'</i>	Sample Length Retained (ft.): <i>—</i>	
Study Depth (NAVD88): <i>2.36'</i>	Acceptable Core (80% recovery): Y (N)	
Required Penetration Length: <i>1.0'</i>	Core Volume Retained (gal.): <i>0.33</i>	

All Length Measurements are in Decimal Feet

0'  
0.3'  
0.6'  
1.0'

Sample Interval (ft.)	Sample Id #	Description
Top		silt, trace med sand, non-ech, non-plas, noy
		sst, sst, 10% 3/1, some roots
		same
		same, twig
Bottom		

Number of containers:	—	—	—	—	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <i>Hard</i>	Vibracorer: P3 P5 VT6 Other				4.0"	.50gal/ft
	<i>Push Corer</i>				<del>3.5"</del> <i>3.0"</i>	<del>33gal/ft</del>
Live Organisms present	Y (N)	Comments <i>25" 0.33gal/ft</i> <i>twig &amp; roots</i> Material not retained				
Oil-Like Present	Y (N)					
Odor Present	Y (N)					
Debris Present	Y (N)					
Photo Numbers	N/A					

*Karina Casey 10/13/16  
Field reviewed*





amec  
foster  
wheeler

## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <i>Matt Motta</i>
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: <i>Chris W.</i>
Date: <i>10/2/2016</i>	Time: <i>18:04</i>	Vessel: <i>Mud puppy</i>
Coordinates: Lat <i>44.58946767</i>	Long <i>-68.8646615</i>	Plan Volume: <i>1 gallon</i>
Sampling Station: <i>Mud-Coe-T02</i>	Deploy No. <i>—</i>	Sub-tidal Location? <i>Y (N)</i>
Weather: <i>65°F</i>	Winds: <i>10-12 km/h</i>	Waves: <i>calm</i>
Traffic: <i>None</i>	Water Temp: <i>58°F</i>	
Measured Water Depth (MWD): <i>3'</i>	Core Penetration Length (ft.): <i>1.0'</i>	
Correction to NAVD88 (+/-ft. from NAVD88): <i>-5.89'</i>	Recovered Core Length (ft.): <i>1.0'</i>	
Mudline (Corrected Depth) @ NAVD88: <i>-0.56'</i>	Sample Length Retained (ft.): <i>—</i>	
Study Depth (NAVD88): <i>-1.56'</i>	Acceptable Core (80% recovery): <i>(Y) N</i>	
Required Penetration Length: <i>1.0'</i>	Core Volume Retained (gal.): <i>0.33</i>	

All Length Measurements are in Decimal Feet

0'  
0.3'  
1.0'

Sample Interval (ft.)	Sample Id #	Description
Top		
		<i>silt, non-coh, non-plas, sat, very soft</i>
		<i>10% 4/3</i>
		<i>silt, coh, low plas, soft, sat, rock 4/3</i>
		<i>sulfur odor, trace notes</i>
Bottom		

Number of containers:	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <i>(Hard)</i>	Vibracorer: P3 P5 VT6 Other				4.0"	.50gal/ft
	<i>(Push Core)</i>				<del>3.5" - 3.0"</del>	<del>.33gal/ft</del>

Live Organisms present	<i>Y (N)</i>	Comments <i>3.5' 0.33 gal/ft</i>
Oil-Like Present	<i>Y (N)</i>	
Odor Present	<i>(N)</i>	
Debris Present	<i>(N)</i>	

Photo Numbers

*W/A*

*Material not retained*

*Karina Casey 10/13/16 Field Rep*







Based on the field book the date should be 10/5/2016.



amec  
foster  
wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: K. Casey
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: <del>Five</del> CW, MM, MB + KB
Date: 10/06/2016	Time: 10:35	Vessel: Pamela
Coordinates: Lat <u>          </u> Long <u>          </u>	Plan Volume: 1 gallon	
Sampling Station: Orland River		
Weather: Sunny	Winds: 5 knots SE	Waters: calm
	Traffic: None	Water Temp: <u>          </u>
Measured Water Depth [NAVD88]: <u>          </u>	Total Number of Deployments: 2	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Conditions: <u>          </u>	
Mudline (Corrected Depth) @ NAVD88: 4.12'		
Study Depth (NAVD88): <u>          </u>		

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	1 1/2 g	10YR 2/1; TR Algae; PRDM CL; some silt	
2	2 1/2 g	water	
	0		

Number of containers: 1-3g	<u>          </u>	<u>          </u>	<u>          </u>	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type Core
				Capacity 4" diameter

Live Organisms present	<input checked="" type="radio"/> Y <input type="radio"/> N	Algae Strong organic TR	Comments 3.5
Oil-Like Present	<input type="radio"/> Y <input checked="" type="radio"/> N		
Odor Present	<input checked="" type="radio"/> Y <input type="radio"/> N		
Debris Present	<input checked="" type="radio"/> Y <input type="radio"/> N		
Photo Numbers	N/A		
	collected 10/5/2016		

Checked  
5/1/2017  
KC



Based on the field logs the date should be 10/5/2016



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wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine Project No. 3616166052 Logger: K. Casey  
 Sub: ~~AquaSurvey~~ WQ: ~~3 - Geophysical~~ Crew: ~~The Gals~~ MM CW, MB + KB  
 Date: 10/06/2016 Time: 10:45 Vessel: Pamola  
 Coordinates: Lat — Long — Plan Volume: 1 gallon  
 Sampling Station: Porcupine Island  
 Weather: Sunny Winds: 0-5 knots Waters: Calm Traffic: None Water Temp: —  
 Measured Water Depth [NAVD88]: — Total Number of Deployments: 2  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38' Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: 4.37'  
 Study Depth (NAVD88): —

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
<u>1</u>	<u>✓</u>	<u>Water</u>	
<u>2</u>	<u>✓</u>	<u>2.54 2.5 / 1 TR small mussels</u> <u>TR wood chips; TR FV Gravel;</u> <u>TR DM silt; some clay</u>	

Number of containers: 1 - 2g — — —  
 Type of container: bucket liner bag jar other Grab Equipment  
 Sampler Type Core  
 Capacity 4" diameter  
 Live Organisms present  Y  N  
 Oil-Like Present  Y  N  
 Odor Present  Y  N  
 Debris Present  Y  N  
 Photo Numbers  
N/A  
 Comments 515'  
TR Organics  
TR  
Collected 10/5/2016

Checked  
5/1/2017  
KC



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT CORE LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MJ3</u>
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: <u>KC CW</u>
Date: <u>10/15/16</u>	Time: <u>1322</u>	Vessel: <u>Pinnola</u>
Coordinates: Lat <u>44.52704233</u> Long <u>-68.75180683</u>	Plan Volume: <u>—</u>	
Sampling Station: <u>SV302B-INT / VES1</u>	Deploy No. <u>—</u>	Sub-tidal Location? Y (N)
Weather: <u>SUNNY</u>	Winds: <u>—</u>	Waters: <u>—</u>
	Traffic: <u>—</u>	Water Temp: <u>—</u>
Measured Water Depth (MWD): <u>2.7'</u>	Core Penetration Length (ft.): <u>—</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Recovered Core Length (ft.): <u>—</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-2.08</u>	Sample Length Retained (ft.): <u>—</u>	
Study Depth (NAVD88): <u>-2.08</u>	Acceptable Core (80% recovery): Y (N)	
Required Penetration Length: <u>1'</u>	Core Volume Retained (gal.): <u>—</u>	

**All Length Measurements are in Decimal Feet**

Sample Interval (ft.)	Sample Id #	Description
Top <u>0'</u>	<u>01</u>	<u>Bouldery - unable to recover anything</u>
Bottom		

Number of containers:	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Core Volumes	
Type of container:	bucket	liner bag	jar	other	Nominal core-barrel diameter	EST. Volume
Liner Type: Soft <u>Hard</u>	Vibracorer: P3 P5 VT6 Other				4.0"	.50gal/ft
	<u>Push Corer</u>				Slambar	<u>3.5"</u>
Live Organisms present	Y	(N)	Comments			
Oil-Like Present	Y	(N)				
Odor Present	Y	(N)				
Debris Present	Y	(N)				
Photo Numbers	<u>N/A</u>					

Checked  
3/31/2017  
KC





amec  
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# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine      Project No. 3616166052      Logger: WFB  
 Sub: ~~AquaSurvey~~      WO: ~~3 Geophysical~~      Crew: KC CW  
 Date: 10/15/16      Time: 14:18      Vessel: Pamola  
 Coordinates: Lat 44.53187383 Long -68.75492567      Plan Volume:       
 Sampling Station: SV303C-SUB / VES4  
 Weather: (Sunny)      Winds:           Waters:           Traffic:           Water Temp:       
 Measured Water Depth [NAVD88]: 33'      Total Number of Deployments: 3  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38'      Conditions:       
 Mudline (Corrected Depth) @ NAVD88: -34.88'  
 Study Depth (NAVD88): -34.91'

written  
on GPS  
needs to  
be corrected

### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	10%	Dusting of WC	
2	5%	TR WC	
3	1%	Dusting of WC TR TRU sample	

Number of containers: 0 bucket 0 liner bag 0 jar 0 other  
 Grab Equipment: Ponar  
 Type of container: bucket 0 liner bag 0 jar 0 other  
 Capacity:       
 Live Organisms present: Y N  
 Oil-Like Present: Y N  
 Odor Present: Y N  
 Debris Present: Y N  
 Photo Numbers: N/A  
 Comments: WC

Checked  
3/31/2017  
KC







# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine      Project No. 3616166052      Logger: M13  
 Sub: ~~AquaSurvey~~      WO: ~~3~~ Geophysical      Crew: KC CW  
 Date: 10/15/16      Time: 12:58      Vessel: Panther

Coordinates: Lat 44.52254667 Long -68.25735150 Plan Volume: ---

Sampling Station: SV301c - sub / VE56

Weather: SUNNY      Winds: ---      Waters: ---      Traffic: ---      Water Temp: ---

Measured Water Depth [NAVD88]: 27'      Total Number of Deployments: 3  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38'      Conditions: ---  
 Mudline (Corrected Depth) @ NAVD88: -23.88'  
 Study Depth (NAVD88): -23.89'

on GPS  
 as SV301c  
 changed

### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	1%	dusting of WC	
2	1%	dusting of WC	
3	1%	dusting of WC	

Number of containers: ---      0      ---      ---      Grab Equipment  
 Type of container: bucket      liner bag      jar      other      Sampler Type Ponar  
    Capacity ---

Live Organisms present      Y N  
 Oil-Like Present      Y N  
 Odor Present      Y N  
 Debris Present      Y N

Photo Numbers  
N/A

**Comments**

Checked  
 3/13/2017  
 KC



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: M. B. W. deMan		
Sub: <del>AquaSurvey</del>	WO: <del>8 - Geophysical</del>	Crew: KC, CW		
Date: 10/15/16	Time: 1210	Vessel: Pamola		
Coordinates: Lat 44.51743400	Long -68.75944067	Plan Volume: —		
Sampling Station: SV300C-sub / VES7				
Weather: Sunny	Winds: —	Waters: —		
	Traffic: —	Water Temp: —		
Measured Water Depth [NAVD88]: 36'	Total Number of Deployments: 3			
Correction to NAVD88 (+/- ft. from NAVD88): -5.38	Conditions: —			
Mudline (Corrected Depth) @ NAVD88: -30.38				
Study Depth (NAVD88): -30.39				
<b>All Recovered Quantities are in Estimated Gallons</b>				
Deployment	Recovery	Description	Sample ID	
(petite)	0	No recovery (using petite PONAR, switched to standard size)		
2 (standard)	0	No recovery		
3 (standard)	1%	TR WC		
Number of containers: —	Grab Equipment			
Type of container: bucket	liner bag	jar	other	Sampler Type Ponar
				Capacity Petite + Standard
Live Organisms present	Y (N)	Comments		
Oil-Like Present	Y (N)			
Odor Present	Y (N)			
Debris Present	Y (N)			
Photo Numbers	N/A			

Checked  
3/31/2017  
KC





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wheeler

Penobscot River Mercury Study - Phase III Engineering Evaluation

VE61

SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB	
Sub: <del>AquaSurvey</del>	WO: <del>3 - Geophysical</del>	Crew: KC, CW	
Date: 10/15/16	Time: 10:35	Vessel: Pamela	
Coordinates: Lat 44.51843833	Long -68.76220600	Plan Volume: —	
Sampling Station: SV300a - INT / VE61			
Weather: 43°F	Winds: 0-5 kts	Waters: Calm	
	Traffic: None	Water Temp: 55°F	
Measured Water Depth [NAVD88]: 6.5'	Total Number of Deployments: 6		
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Conditions: —		
Mudline (Corrected Depth) @ NAVD88: 0.62'			
Study Depth (NAVD88): 0.47'			
All Recovered Quantities are in Estimated Gallons			
Deployment	Recovery	Description	Sample ID
1	5%	Coarse Gravel	
2	30%	Coarse Gravel, Med Gravel	
3	20%	Coarse Sand, Med Gravel, Fine Gravel	
4	5%	Coarse Gravel	
5	0%	Seaweed in trap jaw	
6	5%	Gravel in jaw	
Number of containers:	—	—	—
Type of container:	bucket	liner bag	jar
			other
Grab Equipment	Sampler Type P PONAR		
Capacity	—		
Live Organisms present	Y (N)	Comments VE61-1015246-JED MM No sample taken All material is Gravel	
Oil-Like Present	Y (N)		
Odor Present	Y (N)		
Debris Present	Y (N)		
Photo Numbers	Tablet # 10 IMG-0240 + IMG-0241		

Checked  
3/31/2017  
KC



# Penobscot River Mercury Study - Phase III Engineering Evaluation

## SEDIMENT GRAB LOG

Owner: USDC, District of Maine      Project No. 3616166052      Logger: MB  
 Sub: AquaSurvey      WO: ~~3 - Geophysical~~      Crew: KC  
 Date: 10/17/16      Time: 16:52      Vessel: Famolar  
 Coordinates: Lat 44.56892833 Long -68.78707050      Plan Volume: —  
 Sampling Station: EC309C-sub/VN59  
 Weather: Sunny      Winds: 0-5 knots      Waters: —      Traffic: None      Water Temp: —  
 Measured Water Depth [NAVD88]: 19'      Total Number of Deployments: 3  
 Correction to NAVD88 (+/- ft. from NAVD88): -5.38'      Conditions: —  
 Mudline (Corrected Depth) @ NAVD88: -22.38'  
 Study Depth (NAVD88): -22.39'

### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	0%	No recovery	
2	1%	Dusting of sediment PRDM FN sand. occ. med sand. scat coarse sand.	
3	0%	No recovery	

occ. of  
frag  
poori  
grade  
very  
dens  
5 yr

Number of containers: 1      —      —      —  
 Type of container: bucket      liner bag      jar      other      Grab Equipment  
 Sampler Type: Standard PONAR  
 Capacity: —

Live Organisms present      Y  N   
 Oil-Like Present      Y  N   
 Odor Present      Y  N   
 Debris Present      Y  N   
 Photo Numbers  
N/A  
 Comments  
No material retained

Checked  
3/30/2017  
KC







**Penobscot River Mercury Study - Phase III Engineering Evaluation**  
**SEDIMENT GRAB LOG**

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: KC CW
Date: 10/17/16	Time: 16:25	Vessel: Pamela
Coordinates: Lat 44.5647957	Long -68.77169367	Plan Volume: —
Sampling Station: EC307c-sub / VN61		
Weather: Sunny	Winds: 0-5 knots	Waters: —
	Traffic: None	Water Temp: —
Measured Water Depth [NAVD88]: 21'	Total Number of Deployments: 3	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Conditions: —	
Mudline (Corrected Depth) @ NAVD88: -25.38'		
Study Depth (NAVD88): -25.61'		

5YR<sup>3</sup>  
1  
Slight  
silt  
WC<sup>2</sup>

**All Recovered Quantities are in Estimated Gallons**

Deployment	Recovery	Description	Sample ID
1	30%	Silt. Non-coh. Non-plas. Very soft coh. Slat sand size WC. Slat particle size	
2	5%	Same.	
3	0%	No recovery	

Number of containers:	1	—	—	—	Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type Standard Ponar Capacity

Live Organisms present	Y	Comments Slight WC
Oil-Like Present	X	
Odor Present	Y	
Debris Present	Y	
Photo Numbers	Tablet # 10 IMG-0290 + IMG-0291	

Checked  
3/30/2017  
KC





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## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MB</u>
Sub: <u>AquaSurvey</u>	WO: <u>3 - Geophysical</u>	Crew: <u>KC CW</u>
Date: <u>10/17/16</u>	Time: <u>15:59</u>	Vessel: <u>Pamola</u>
Coordinates: Lat <u>44.55972717</u> Long <u>-68.7687250</u>	Plan Volume: <u>-</u>	
Sampling Station: <u>EC306C-sub / VN62</u>		
Weather: <u>Sunny</u>	Winds: <u>5 knots</u>	Waters: <u>-</u>
	Traffic: <u>None</u>	Water Temp: <u>-</u>
Measured Water Depth [NAVD88]: <u>-</u>	Total Number of Deployments: <u>3</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Conditions: <u>-</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-3.38'</u>		
Study Depth (NAVD88): <u>-3.38'</u>		

**All Recovered Quantities are in Estimated Gallons**

Deployment	Recovery	Description	Sample ID
1	0%	No recovery	
2	0%	No recovery	
3	0%	No recovery	

Number of containers:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type: <u>Standard PONAR</u>
					Capacity: <u>↓</u>

Live Organisms present	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	Comments
Oil-Like Present	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
Odor Present	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
Debris Present	Y <input checked="" type="radio"/> N <input checked="" type="radio"/>	
Photo Numbers	<u>N/A</u>	<u>No material retained</u>

Checked  
3/30/2017  
KC



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foster  
wheeler

**Penobscot River Mercury Study - Phase III Engineering Evaluation**  
**SEDIMENT GRAB LOG**

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MB</u>
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: <u>KC cw</u>
Date: <u>10/17/16</u>	Time: <u>15:36</u>	Vessel: <u>Pamola</u>
Coordinates: Lat <u>44.55330817</u>	Long <u>-68.76573800</u>	Plan Volume: <u>—</u>
Sampling Station: <u>EC305C-sub/VN63</u>		
Weather: <u>Sunny</u>	Winds: <u>5 knots</u>	Waters: <u>—</u>
	Traffic: <u>NDW</u>	Water Temp: <u>—</u>
Measured Water Depth [NAVD88]: <u>22'</u>	Total Number of Deployments: <u>3</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Conditions: <u>—</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-21.38'</u>		
Study Depth (NAVD88): <u>-21.38'</u>		

**All Recovered Quantities are in Estimated Gallons**

Deployment	Recovery	Description	Sample ID
1	0%	No recovery	
2	0%	No recovery	
3	0%	No recovery	

Number of containers:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Grab Equipment
Type of container:	bucket	liner/bag	jar	other	Sampler Type <u>Standard Ponar</u>
					Capacity <u>✓</u>
Live Organisms present	Y <input checked="" type="checkbox"/>	Comments			
Oil-Like Present	Y <input checked="" type="checkbox"/>				
Odor Present	Y <input checked="" type="checkbox"/>				
Debris Present	Y <input checked="" type="checkbox"/>				
Photo Numbers	N/A				
<u>No material retained</u>					

Checked  
3/30/2017  
KC





amec  
foster  
wheeler

## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MJB</u>			
Sub: <u>AquaSurvey</u>	WO: <del>9 - Geophysical</del>	Crew: <u>KC CW</u>			
Date: <u>10/17/14</u>	Time: <u>14:55</u>	Vessel: <u>Pamola</u>			
Coordinates: Lat <u>44.54656900</u> Long <u>-68.76524867</u>	Plan Volume: <u>---</u>				
Sampling Station: <u>EC3D4C-sub/VN64</u>					
Weather: <u>SUNNY</u>	Winds: <u>0-5 knots</u>	Waters: <u>---</u>			
	Traffic: <u>---</u>	Water Temp: <u>---</u>			
Measured Water Depth [NAVD88]: <u>21'</u>	Total Number of Deployments: <u>3</u>				
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Conditions: <u>---</u>				
Mudline (Corrected Depth) @ NAVD88: <u>-19.38'</u>					
Study Depth (NAVD88): <u>-19.49'</u>					
<b>All Recovered Quantities are in Estimated Gallons</b>					
Deployment	Recovery	Description	Sample ID		
1	0	No recovery			
2	0	No recovery			
3	15%	SIH. Non-w/h. Non-plas. very soft con. GLEYI 12.5/10Y-TR WC.			
Number of containers:	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type <u>Standard Ponar</u>
					Capacity <u>✓</u>
Live Organisms present	Y <u>0</u>	Comments			
Oil-Like Present	Y <u>0</u>				
Odor Present	Y <u>0</u>				
Debris Present	Y <u>N</u>				
Photo Numbers	WC				
<u>Tablet #10</u>					
<u>IMG_0278</u>					

Checked  
3/30/2017  
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## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>MJB</u>
Sub: <del>AquaSurvey</del>	WO: <del>Geophysical</del>	Crew: <u>KC CW</u>
Date: <u>10/15/16</u>	Time: <u>1550</u>	Vessel: <u>Pamola</u>
Coordinates: Lat <u>44 5402111</u>	Long <u>-68 76982867</u>	Plan Volume: <u>—</u>
Sampling Station: <u>EC301C-SUB / VNG5</u>		
Weather: <u>SWHY</u>	Winds: <u>—</u>	Waters: <u>—</u>
Traffic: <u>—</u>	Water Temp: <u>—</u>	
Measured Water Depth [NAVD88]: <u>25'</u>	Total Number of Deployments: <u>3</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Conditions: <u>—</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-27.38'</u>		
Study Depth (NAVD88): <u>-27.38'</u>		

#### All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
<u>1</u>	<u>0%</u>	<u>No recovery</u>	
<u>2</u>	<u>0%</u>	<u>No recovery</u>	
<u>3</u>	<u>0%</u>	<u>No recovery</u>	

Number of containers:	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type <u>Ponar</u>
					Capacity <u>—</u>

Live Organisms present	Y <u>N</u>	Comments
Oil-Like Present	Y <u>N</u>	
Odor Present	Y <u>N</u>	
Debris Present	Y <u>N</u>	
Photo Numbers	<u>N/A</u>	<u>No material retained</u>

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## Penobscot River Mercury Study - Phase III Engineering Evaluation

### SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: <u>NU3</u>
Sub: <del>AquaSurvey</del>	WO: <del>3 Geophysical</del>	Crew: <u>KC GW</u>
Date: <u>10/15/16</u>	Time: <u>1510</u>	Vessel: <u>Pamola</u>
Coordinates: Lat <u>44.53570983</u>	Long <u>-68.76178533</u>	Plan Volume: <u>—</u>
Sampling Station: <u>EC300C-sub / VN66</u>		
Weather: <u>SUNNY</u>	Winds: <u>—</u>	Waters: <u>—</u>
	Traffic: <u>—</u>	Water Temp: <u>—</u>
Measured Water Depth [NAVD88]: <u>30'</u>	Total Number of Deployments: <u>3</u>	
Correction to NAVD88 (+/- ft. from NAVD88): <u>-5.38'</u>	Conditions: <u>—</u>	
Mudline (Corrected Depth) @ NAVD88: <u>-35.13'</u>		
Study Depth (NAVD88): <u>-35.21'</u>		

**All Recovered Quantities are in Estimated Gallons**

Deployment	Recovery	Description	Sample ID
1	0%	No recovery	
2	<del>5%</del> 10%	coarse gravel - TR mussel shells	
3	0%	No recovery	

Number of containers: <u>—</u>	<u>1 gal</u>	<u>—</u>	<u>—</u>	Grab Equipment
Type of container: bucket	liner bag	jar	other	Sampler Type <u>Standard PONAR</u>
				Capacity <u>—</u>

Live Organisms present	Y (N)	Comments
Oil-Like Present	Y (N)	
Odor Present	Y (N)	
Debris Present	Y (N)	
Photo Numbers		
<u>Tablet # 10</u> <u>IMG-0258</u>		

Checked  
3/30/2017  
KC

## TRAP LOGS

















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Penobscot River Mercury Study - Phase III Engineering Evaluation

SEDIMENT GRAB LOG

Owner: USDC, District of Maine	Project No. 3616166052	Logger: MB
Sub: AquaSurvey	WO: 3-Geophysical	Crew: KC can
Date: 10/17/16	Time: 1222	Vessel: Pamolan
Coordinates: Lat 44.50733817	Long -68.7664017	Plan Volume: -
Sampling Station: SV AMEC 06204 / VE-TRAP 3		
Weather: Sunny	Winds: calm	Waters: -
	Traffic: -	Water Temp: -
Measured Water Depth [NAVD88]: 22'	Total Number of Deployments: 2	
Correction to NAVD88 (+/- ft. from NAVD88): -5.38'	Conditions: -	
Mudline (Corrected Depth) @ NAVD88: -26.88'		
Study Depth (NAVD88): -17.14'		

All Recovered Quantities are in Estimated Gallons

Deployment	Recovery	Description	Sample ID
1	5%	TR WC	
2	35%	FRDT silt with occ. FN sand clam shells (ABNT) cohesive, non-plas, soft coh. GLEYS 3/10% - slight sulfur-like odor	

Number of containers:	-	1 gal	-	-	Grab Equipment
Type of container:	bucket	liner bag	jar	other	Sampler Type Capacity PONAR (standard)

Live Organisms present	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	Comments slight white shell fragments  Composite Sample, VE-TRAP 2+3
Oil-Like Present	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
Odor Present	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
Debris Present	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
Photo Numbers	N/A	

Checked  
5/31/2017















































































## **VISUAL ASSESSMENT LOGS**

Visual Assessment

Date: 10/11/2016

Time: 1401

Tide: R

Location: BU31 15' Hill

Surf Waves: None

Lat 44.58192

Long -68.8141

Open Water: 6"

Tablet # 10

I. Surf Line

Twigs&Bark \_\_\_\_\_  
 Leaves&Grass \_\_\_\_\_  
 Chip Size: Shredded Mulch (1-2") \_\_\_\_\_  
 Sawdust (1/4") \_\_\_\_\_  
 Particle (grain) \_\_\_\_\_

Abundant:	80-100%
Occasional:	50-70%
Scattered:	20-40%
Some:	5-20%
Trace:	0-5%

Base Sediment  
 Sand  
 Silt  
 (Circle one)

Intermingled Wood Chip (WCH)

Y  N on surface

II. A. WCH exposed above mudline

Y N

Thickness on surface (approx.) \_\_\_\_\_ inch.

Collected: Y N

Collection Method: \_\_\_\_\_

Comments: \_\_\_\_\_

B. WCH below mudline

Collected: Y N

Deposition band offset from surf line Y N

Thickness: \_\_\_\_\_

Collection Method: \_\_\_\_\_

Comments: Gray sandy silt w/ chip - scattered

WCH on surface

III. Edge Conditions  
(Circle)

Vegetated  
 Bulkhead  
 Rock (cliff)

IV. Bank Conditions  
(Circle)

Boulder Outcrops  
 Sloping Mudflats  
 Slumped Mudflats

Photos Showing:

- N/A
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Videos Showing:

- N/A
- \_\_\_\_\_

Was on the bottom of BU103 Visual Assessment form

Checked 3/24/2017 KC



# Visual Assessment

Date 11 Oct 2016

Time 1300

Tide slack low

Location: BU ~~100~~ 101-Sub

between 2 piers opposite NE Coal Terminal

Lat 44.58722

Long -68.8240

Surf waves light to  
wind 0-4k new  
Open water glass

Collected

## I. Surf line

chips — size —

Twigs + Bark	Abundant 80-100%	0
Leaves + Twigs	Occasional 50-70%	A
Grass	Scattered 20-50%	0
Trace	Trace 5-20%	0
Some Trace 5-5%		
Shredded Mulch (1-2")		A
Sawdust (1/4")		0
Particle (grain)		0

~~BU 100 Surf line~~  
BU 101 Sub

Base Sediment — Intermingled WCH Y N too turbid can't see  
sand (silt)

## II. WCH Exposed Above Mudline

thickness on surface (est) 1-2 inch

Collected  
~~BU 100 - I - exposed~~  
BU 101 Sub

## WCH Below Mudline

deposition band offset from surfline Y (N) thickness

Collected BU 100 - 10 ft offshore  
~~BU 100 - 20 ft offshore~~

— inches

## III. Map Approx. Linear Extent - Tablet # 10

Between 2 piers

## IV. Edge Conditions

Vegetated  
Bulkhead  
Rock (cliff.)

Photos Showing:  
Bank, Collected scrag  
Surflines, Submerged.  
Video Showing:

## V. Bank Conditions

boulder outcrops  
sloping mudflats  
slumped mudflats

0

LAT 44.58723667 Long -68.82408850

BU 101 - petite pier -  
subtidal @ 6ft

black silty sand w/ WC intermingled + high sulfur odor  
overlying light brown Trace thickness silt  
overlying WC (sawdust)

Checked  
3/23/2017  
KC

# Visual Assessment

Date ~~10/10/16~~ 10/11/16 Time 1440

Tide R

Location: BU 103 Lawrence Cove

Surf waves none

LAT 44.58597 Long -68.8138

Open water 6"

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-40%  
Trace 0-20%

I. Surf line

Chips size

- Leaves + Twigs
- Shredded Mulch (1-2")
- Sawdust (1/4")
- Particle (grain)

Base Sediment sand silt Intermingled WC# Y (N)

Amount Collected

BU103\_Surfline

II. WC# Exposed Above Mudline - <sup>uniform</sup> sawdust WC thickness on surface (est) 1 inch

rocks in <sup>seaward</sup> ring of ~~rocks~~ exposed boulders

WC# Below Mudline deposition band offset from surfline Y (N) thickness        inches

Collected        1/4" ripples of subtidal chip

Collected       

BU103-Exposed

III. Map Approx. Linear Extent - Tablet # 10 exposed flats near power line

IV. Edge Conditions Vegetated  
Bulked  
Rock (cliff.)

V. Bank Conditions boulder outcrops  
sloping mud flats  
slumped mud flats

Photos Showing: exposed ~~subtidal~~ chip retrievable vicinity  
Video Showing:       

Entered onto separate forms

LAT 44.58483 Long -68.8148

BU104 - Can 9 - gray silty sand w/ trace WC on surface

No GIS Point

BU105 - bet. Cans 7+9 - gray silty sand w/ trace WC on surface

BU 31 - 15' hill - <sup>gray</sup> Sandy silt w/ chip - scattered WC# on surface

LAT 44.58192 Long -68.8141

Checked 11/23/2017 KC

Visual Assessment

Date: 10/11/2016

Time: 1454

Tide: R

Location: BU104 Cam 9

Surf Waves: none

Open Water: 6"

Lat 44.58483 Long -68.8148

Tablet # 10

I. Surf Line

Twigs&Bark	_____	Abundant:	80-100%
Leaves&Grass	_____	Occasional:	50-70%
Chip Size: Shredded Mulch (1-2")	_____	Scattered:	20-40%
Sawdust (1/4")	_____	Some:	5-20%
Particle (grain)	_____	Trace:	0-5%

Base Sediment  
Sand Silt  
(Circle one)

Intermingled Wood Chip (WCH) Y N on surface

II. A. WCH<sup>14</sup> exposed above mudline

Y N

Thickness on surface (approx.) \_\_\_\_\_ inch.

Collected: Y N

Collection Method: \_\_\_\_\_

Comments: \_\_\_\_\_

B. WCH<sup>14</sup> below mudline

Collected: Y N

Deposition band offset from surf line Y N

Thickness: \_\_\_\_\_

Collection Method: \_\_\_\_\_

Comments: Gray silty sand w/ trace WCH on surface

III. Edge Conditions  
(Circle)

- Vegetated
- Bulkhead
- Rock (cliff)

IV. Bank Conditions  
(Circle)

- Boulder Outcrops
- Sloping Mudflats
- Slumped Mudflats

Photos Showing:

- N/A
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Videos Showing:

- N/A
- \_\_\_\_\_

Was on the bottom of BU103 Visual Assessment Form

Checked  
3/24/2017  
KC



Visual Assessment

Date: 10/11/2016 Time: ~1400-1500 Tide: R

Location: BU105 between Cans 7+9 Surf Waves: none  
Lat: — Long: — Open Water: 6"

Tablet # 10  
No GIS Point

I. Surf Line

Twigs&Bark	_____	Abundant:	80-100%
Leaves&Grass	_____	Occasional:	50-70%
Chip Size: Shredded Mulch (1-2")	_____	Scattered:	20-40%
Sawdust (1/4")	_____	Some:	5-20%
Particle (grain)	_____	Trace:	0-5%

Base Sediment Intermingled Wood Chip (WCH) Y N on surface  
Sand Silt  
(Circle one)

II. A. WCH exposed above mudline Y N  
Thickness on surface (approx.) \_\_\_\_\_ inch. Collected: Y N

Collection Method: \_\_\_\_\_

Comments: \_\_\_\_\_

B. WCH below mudline Collected: Y N  
Deposition band offset from surf line Y N Thickness: \_\_\_\_\_

Collection Method: \_\_\_\_\_

Comments: Gray silty sand w/ trace WCH on surface

III. Edge Conditions (Circle)  
Vegetated  
Bulkhead  
Rock (cliff)

IV. Bank Conditions (Circle)  
Boulder Outcrops  
Sloping Mudflats  
Slumped Mudflats

Photos Showing:

- N/A
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Videos Showing:

- N/A
- \_\_\_\_\_

Was on the bottom of BU103 Visual Assessment Form

Checked  
3/24/2017  
KC

Visual Assessment

Date 10/12/16

Time 12:12

Tide Falling  
Surf waves trace

Location:

EC109-int

Lat 44.53699  
Long -68.7613

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-40%  
Trace 5-20%  
Amount  
Trace 0-5%

Open water

Collected

I. Surf line

Chips — size —  
Leaves + Twigs + Grass  
Shredded Mulch (1-2")  
Sawdust (1/4")  
Particle (grain)

∅  
∅  
ABNT

Base Sediment — Intermingled WCH (Y) N  
sand silt

II. WCH Exposed Above Mudline (Y) N  
thickness on surface (est) 1/4" inch  
1/4 MB

Collected  
Yes

WCH Below Mudline  
deposition band offset from surfline  
Collected Y

(Y) N thickness  
12 inches  
see photo

III. Map Approx. Linear Extent - Tablet # 10

IV. Edge Conditions —  
Vegetated  
Bulched  
Rock (cliff.)

Photos Showing:  
Y

V. Bank Conditions —  
boulder outcrops  
sloping mud flats  
slumped mud flats

Video Showing:  
Y

checked

similar connectivity to Frankfurt Flats

~ 100 feet of mud shoreline

checked  
3/24/2017  
KC

# Visual Assessment

Date 10-12-16

Time 1245

Tide F  
0-0.5'

Surf waves 0-0.5'

Open water 0-0.5'

Location:

EC110-int

Lat 44.53848

Long -68.7626

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-40%  
Trace 5-20%  
some Trace - Scattered

Collected

I. Surf line

- chips — size —
  - Twig + Bark
  - Leaves + Twigs
  - Grass
  - shredded Mulch (1-2") N
  - Sawdust (1/4") N
  - Particle (grain) TR **ABUNDANT**

Base Sediment — Intermingled w/CH (Y) N  
sand silt

II.

WCH Exposed Above Mudline (Y) N  
thickness on surface (est) 1/4 inch YES Collected

WCH Below Mudline  
deposition band offset from surfline (Y) N thickness 12-16 inches  
Collected YES

III Map Approx. Linear Extent - Tablet # 10

- IV Edge Conditions — Vegetated  
Built  
Rock (cliff.)
  - V Bank Conditions — boulder outcrops  
sloping mudflats  
slumped mudflats
- Photos Showing: NO/6  
Video Showing: NO/6

TR wood chip in bottom ripples - similar to Lawrence Core

N 300ft exposed mud flat  
checked 3/24/17 RL



# Visual Assessment

Date 10-11-16

Time 1310

Tide SL <sup>KUS</sup> SL

Location:

Surf waves 0-0.1'

Open water 0-0.5'

**EC III - INT**

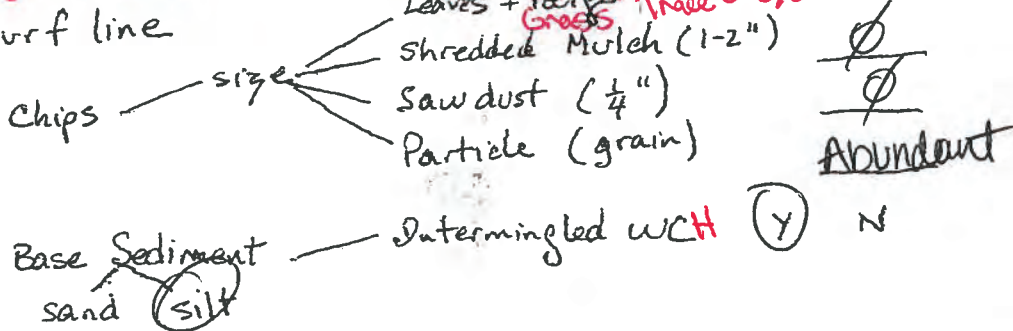
**Lat 44.54374**

**Long -68.7634**

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace 0-20%  
Some Trace 0-5%

Collected

I. Surf line



II.

WCH Exposed Above Mudline (Y) N

thickness on surface (est) 1/4" inch

Collected

Y

WCH Below Mudline

deposition band offset from surfline (Y) N

Collected

Y

thickness 16 inches

III

Map Approx. Linear Extent - Tablet # 10

IV

Edge Conditions

Vegetated  
Bulked  
Rock (cliff)

Photos Showing:

Y

V

Bank Conditions

boulder outcrops  
sloping mudflats  
slumped mudflats

Video Showing:

Y

MAP 12 "LOBSTER" POT TRUCK

600 ft of  
mudflat shoreline  
Checked  
3/24/2017  
KC

Visual Assessment

Date 10/12/16

Time 1335

Tide low

Location: EC 112 Int

Surf waves 0-0.5'

Lat 44.55030

Open water 0-0.5'

Long -68.7652

Abundant	80-100%
Occasional	50-70%
Scattered	20-40%
Trace	0-20%

Collected Y

I. Surf line

Chips — size — Leaves + Twigs  
 Shredded Mulch (1-2")  
 Sawdust (1/4")  
 Particle (grain)

Amount  
 ∅  
 ∅  
 ∅  
 Abundant

Base Sediment — Intermingled WCH (Y)  
 sand (Silt)

N

II.

WCH Exposed Above Mudline (Y) N  
 thickness on surface (est) 1/4 inch

Collected  
 No

WCH Below Mudline  
 deposition band offset from surfline

Collected Y

(Y) N thickness  
180 inches  
 ≈ 15' offshore began haul

III

Map Approx. Linear Extent - Tablet # 10

IV

Edge Conditions — ~~Vegetated~~  
 Bulkhead  
 Rock (cliff)

Photos Showing:  
 Y

V

Bank Conditions — ~~boulder outcrops~~  
~~sloping mudflats~~  
~~slumped mudflats~~

Video Showing:  
 Y

mudflat bounded by boulder outcrops

Checked  
3/24/2017  
KC

# Visual Assessment

Date 10/11/2016

Time 1545

Tide R

Location: FF 100

\*Wind waves extending surf waves 6" churn from SW aligned w/ FF deposit. Open water 1' wind chop

Frankfort Flat shallow deposit

Lat 44.61991  
Long -69.8418

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace 5-20%

Collected

## I. Surf line

Chips — size —> Twigg Bank  
Leaves + Twigs  
Grass  
Some Trace 0-5%  
shredded Mulch (1-2")  
Sawdust (1/4")  
Particle (grain)

FF100\_Surf

Base Sediment  
sand silt

Intermingled WCH (Y) N

did not find — all chip

## II.

WCH Exposed Above Mudline (Y) N greater than  
thickness on surface (est) 1/2 inch  
↳ depth undetermined need to core

Collected  
FF100\_exposed

WCH Below Mudline

deposition band offset from surfline (Y) N thickness  
— inches

Collected

Prop Wash heavy deposit

## III

Map Approx. Linear Extent — Tablet # 10

## IV

Edge Conditions —> Vegetated  
Bulked  
Rock (cliff)

Photos Showing:  
Rivulet, Churning, hand dug hole  
Video Showing:  
Rivulets, churning,  
prop wash.

## V

Bank Conditions —> boulder outcrops  
sloping mudflats  
slumped mudflats

Large WC deposit likely feet thick on exposed flat and shallow subtidal. possibly extending from historic groin south from shallow (-5ft) to veg. marsh incl. exposed bank which is several feet exposed.

Checked  
10/24/2017  
KE



Visual Assessment

Date 10/12/2016

Time 9:38

Tide Falling

Surf waves Calm

Open water Calm

Location: FF200-INT

Lat 44.62007

Long -68.8410

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace 5-20%  
Amount

Collected

I. Surf line

Chips — size —  
 Twigs + Bark  
 Leaves + Foliage  
 Shredded Mulch (1-2") TR  
 Sawdust (1/4") ABNT  
 Particle (grain) Maybe

Base Sediment — Intermingled WCH (Y) N  
 sand silt

II. WCH Exposed Above Mudline (Y) N

thickness on surface (est) + 1 ft. inches

Collected  
 Core + Ponar

WCH Below Mudline  
 deposition band offset from surfline

(N) thickness  
 not currently inches

Collected

III Map Approx. Linear Extent - Tablet # 12

IV Edge Conditions —  
 Vegetated  
 Bulkhead  
 Rock (cliff)

Photos Showing:  
 10/12/2016 @ 9:51 am

V Bank Conditions —  
 boulder outcrops  
 sloping mudflats  
 slumped mudflats

Video Showing:  
N/A

NOTE: ~~No living creatures visually seen~~

20+ amphipod in #4or-rive

Checked  
 3/24/2017  
 KC

Visual Assessment

Date 10/12/16

Time 1128

Tide Fall 1.75

Location: OR 100-INT

surf waves T calm

Lat 44.54110  
Long -68.7498

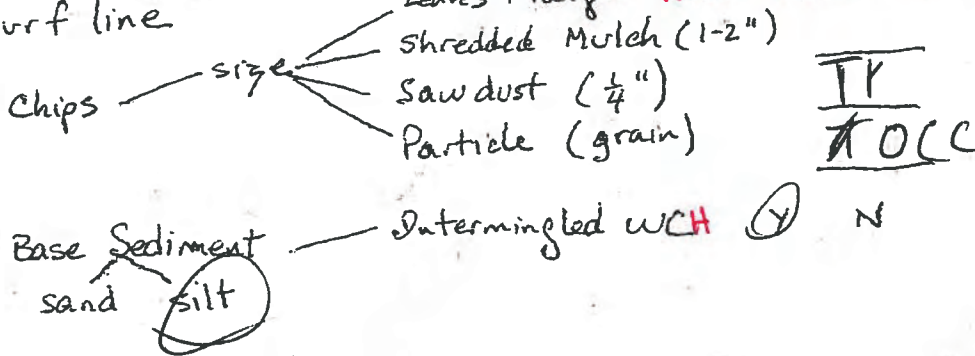
Open water 1'



Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace some 0-25%  
TAKE 0-5%

Collected

I. Surf line



II.

WCH Exposed Above Mudline (Y) N  
thickness on surface (est) 4 MM  
4 inch

Collected

WCH Below Mudline  
deposition band offset from surfline (Y) N thickness  
4 inches  
Collected

III Map Approx. Linear Extent - Tablet # 12

IV Edge Conditions — Vegetated w/ Boulder  
Bulkhead  
Rock (cliff)

V Bank Conditions — boulder outcrops  
sloping mud flats  
slumped mud flats

Photos Showing:  
Core / 11:37  
Video Showing:  
N/A

checked  
3/24/2015  
KL

Visual Assessment  
 Date 10/11/16 Time 1205

Tide F  
 Surf waves Calm  
 Open water 1'

Location: OR 101  
OR 101 - INT  
 Lat 44.54551  
 Long -68.7469

Abundant 80-100%  
 Occasional 50-70%  
 Scattered 20-50%  
 Trace 5-20%  
 Amount

Collected

I. Surf line  
 Chips — size —  
 Twigs + Bark  
 Leaves + Foliage  
 Grass  
 Shredded Mulch (1-2")  
 Sawdust (1/4")  
 Particle (grain)  
 Intermingled WCH Y (N)  
 Base Sediment sand silt  
 Comment: NO CHIPS OBSERVED

II. WCH Exposed Above Mudline (Y) N  
 thickness on surface (est) 1.5 inches  
 Comments: particle size 5 cat  
 WCH Below Mudline — None OBSERVED  
 deposition band offset from surfline Y (N) thickness — inches  
 Collected

III Map Approx. Linear Extent — Tablet # 12

IV Edge Conditions —  
 Vegetated w/ Boulder  
 Rock (cliff.)  
 V Bank Conditions —  
 Boulder outcrops  
 sloping mudflats  
 slumped mudflats

Photos Showing:  
 "Cove" 1205  
 Video Showing:  
 N/A

Checked  
 3/24/2017  
 KC



Visual Assessment

Date 10/12/16

Time 1230

Tide FULL

Location: OR-102-INT

Lat 44.55157

Long -68.7442

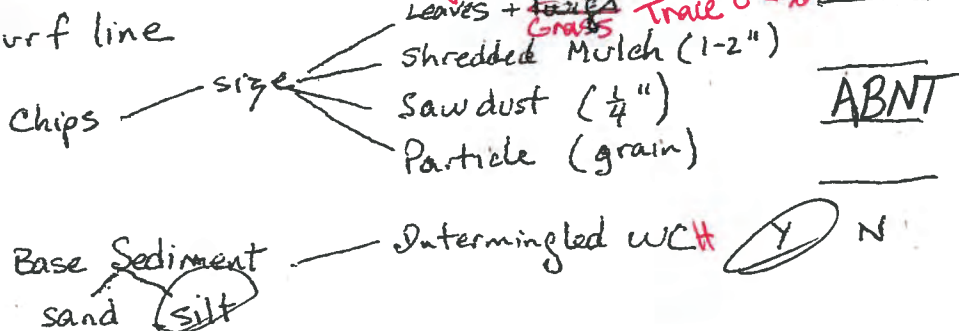
Surf waves Calm

Open water Calm

Abundant	80-100%
Occasional	50-70%
Scattered	20-50%
Trace	0-20%

Collected

I. Surf line



II. WC# Exposed Above Mudline

thickness on surface (est) 1-2 inch

Collected

Kelmers

WC# Below Mudline

deposition band offset from surfline Y N

thickness  
— inches

Collected CORE

+6

- Bottom of Core ST  
PROB. Bottom  
about 40%  
WC

III. Map Approx. Linear Extent - Tablet #

12

IV. Edge Conditions

vegetated w/ Boulder  
Bulched  
Rock (cliff)

Photos Showing:  
1329

V. Bank Conditions

boulder outcrops  
sloping mud flats  
slumped mud flats

Video Showing:  
123c

Checked  
3/24/2017  
KC

# Visual Assessment

Date 10/12/2016

Time 12:30

Tide Rising

Location: OR 103-INT

Surf waves calm

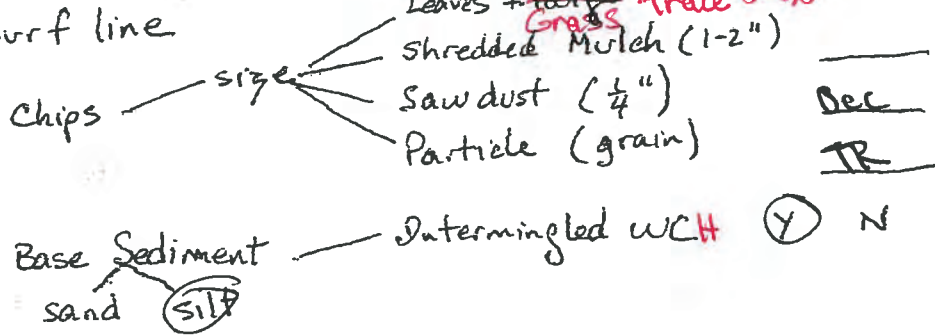
Lat 44.55214  
Long -68.7459

Open water N

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace 5-20%  
Some Trace 0-5%

Collected

I. Surf line



II.

WCH Exposed Above Mudline (Y) N

thickness on surface (est) 2 mm inch

Comments: Particle chips

WCH Below Mudline

deposition band offset from surfline (Y) N thickness — inches

Collected Core

Collected

III Map Approx. Linear Extent — Tablet # 12

IV Edge Conditions — Vegetated, Bulkhead, Rock (cliff)

V Bank Conditions — boulder outcrops w/ some boards, sloping mudflats, slumped mudflats

Photos Showing: N/A

Video Showing: N/A

Checked  
3/24/2017  
KC

# Visual Assessment

Date 10/12/2016

Time 1:53

Tide Rising

Location: OR 104 INT

Lat 44.55526

Long -68.7437

Surf waves Calm

Open water N/A

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-40%  
Trace 5-20%  
Some Trace 0-5%

Collected

## I. Surf line

chips

size

Twigs + Bank

Leaves + ~~Twigs~~ ~~Gross~~

Shredded Mulch (1-2")

Sawdust (1/4")

Particle (grain)

ABNT

SCAT

Base Sediment

sand

silt

Intermingled WCH

(Y) N

## II.

WCH Exposed Above Mudline

(Y) N

thickness on surface (est) ~1 mm

Comments! SCAT particle chip  
TR Sawdust chip

Collected Kemmerer

WCH Below Mudline

deposition band offset from surfline

(Y) N

thickness ~6-7 inches

Collected Core

## III

Map Approx. Linear Extent - Tablet # 12

## IV

Edge Conditions

Vegetated

Bulked

Rock (cliff)

Photos Showing:

## V

Bank Conditions

boulder outcrops

sloping mudflats

slumped mudflats

10/12/2016 @ 1:55 PM  
Video Showing:

N/A

Checked  
3/24/2017  
KC



Visual Assessment

Date 10/12/16

Time 1430

Tide Rising

Location:

Lat 44.56638  
Long -68.7432

OR105-INT

Surf waves CalM

Open water >1'

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace 5-20%

Collected

I. Surf line

Chips — size —  
Twigs + Bark  
Leaves + Foliage  
Shredded Mulch (1-2")  
Sawdust (1/4")  
Particle (grain)

Base Sediment — Intermingled w/CH Y (N)  
sand (silt)

Non observed

II. ✓ WCH Exposed Above Mudline

(Y) N

Collected

thickness on surface (est) 1 mm inches

Kepner

WCH Below Mudline

deposition band offset from surfline

Y (N) thickness — inches

Collected CSL

Non observed

III. Map Approx. Linear Extent - Tablet # 12

IV. Edge Conditions —  
vegetated  
Bulked  
Rock (cliff)

Photos Showing:  
228

V. Bank Conditions —  
boulder outcrops  
sloping mudflats  
slumped mudflats

Video Showing:  
N/A

Checked  
3/24/2017  
KC

Visual Assessment

Date 10/12/16

Time 1444

Tide R.J.H.S

Location:

surf waves Calm

Open water Calm

OR106-INT

No GIS Point

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace 5-20%

Collected

I. Surf line

Chips — size —

- Twigs + Bark <sup>Trace 5-20%</sup>
- Leaves + Twigs <sup>Trace 0-5%</sup>
- Grass <sup>Trace 0-5%</sup>
- Shredded Mulch (1-2") TR
- Sawdust (1/4") TR
- Particle (grain) JCW

Base Sediment — Intermingled WCH (Y) N  
 sand (silt)

II. WCH Exposed Above Mudline (Y) N

thickness on surface (est) >1 mm inches KOMMER

WCH Below Mudline

deposition band offset from surfline (B) N thickness 4 inches

Collected COTE

III Map Approx. Linear Extent - Tablet # 12

IV Edge Conditions vegetated  
Bulkhead  
Rock (cliff.)

V Bank Conditions boulder outcrops  
sloping mudflats  
slumped mudflats

Photos Showing:

244

Video Showing:

N/A

Checked  
3/24/2017  
KC

Visual Assessment

Date 10/12/16

Time 1500

Tide Rising

Location:

surf waves calm

Open water calm

**OR107-INT**

Lat 44.56805  
Long -68.7430

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace some 5-20%  
Amount

Collected

I. Surf line

Chips size ———  
Twigs + Bark  
Leaves + Twigs  
Grass  
Shredded Mulch (1-2")  
Sawdust (1/4")  
Particle (grain)

Base Sediment ——— Intermingled w/CH Y N  
sand (silt)

Comments: None w/CH

II.

w/CH Exposed Above Mudline Y (N)  
thickness on surface (est) \_\_\_\_\_ inch  
None

Collected

w/CH Below Mudline  
deposition band offset from surfline Y (N) thickness  
\_\_\_\_\_ inches

Collected \_\_\_\_\_

None

III

Map Approx. Linear Extent - Tablet # 12

IV

Edge Conditions ——— Vegetated  
Bulked  
Rock (cliff.)

Photos Showing:  
258

V

Bank Conditions ——— boulder outcrops  
sloping mud flats  
stomped mud flats

Video Showing:  
N/A

Checked  
3/24/2017  
KC



Visual Assessment

Date 10/12/16

Time 15:21

Tide R

Location:

OR108-INT

Lat 44.56604  
Long -68.7438

Surf waves Calm  
Open water Calm

Collected

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace 5-20%  
Amount

Twigs + Bark  
Leaves + Twigs  
Grass

I. Surf line

chips — size —  
shredded Mulch (1-2")  
Sawdust (1/4")  
Particle (grain)

JCAT  
JCAT

Base Sediment — Intermingled WCH (Y) N  
sand (Silt)

II. WCH Exposed Above Mudline (Y) N  
thickness on surface (est) ~1 inch

Collected  
Kempner

WCH Below Mudline  
deposition band offset from surfline (Y) N thickness 1 foot

Collected Cave  
to end of core

III. Map Approx. Linear Extent - Tablet # 12

IV. Edge Conditions —  
Vegetated  
Bulked  
Rock (cliff)

V. Bank Conditions —  
boulder outcrops  
sloping mudflats  
slumped mudflats

Photos Showing:  
10/12/16 @ 3:21 pm  
Video Showing:  
N/A

NOTE: Rivulet to back of cave water level was to low to enter

Checked  
3/24/2017  
KC

# Visual Assessment

Date 10/11/2016

Time 13:41

Tide falling

Location: SP 100-INT

Lat 44.71144

Long -68.8382

Surf waves Calm

Open water Calm

Abundant 80-100%  
 Occasional 50-70%  
 Scattered 20-40%  
 Trace 5-20%  
 Some Trace 0-5%

Collected

## I. Surf line

chips

size

Twig + Bank  
Leaves + Turps  
Grass

Shredded Mulch (1-2")

Sawdust (1/4")

Particle (grain)

IR

Occ

Base Sediment

sand silt

Intermingled WC#

(Y) N

Comments: W/ FN Sand

## II. WC# Exposed Above Mudline

(Y) N

thickness on surface (est) 1mm thick

Collected

Cone

WC# Below Mudline

deposition band offset from surfline

(Y) N

thickness ~1mm inches

Collected Shawglobe

## III. Map Approx. Linear Extent - Tablet # 12

## IV. Edge Conditions

Edge Conditions

Vegetated

Bulked

Rock (cliff)

## V. Bank Conditions

Bank Conditions

boulder outcrops

sloping mudflats

slumped mudflats

Photos Showing:

10/11/2016 @ 1:41

Video Showing:

N/A

Checked  
3/24/2017  
KC

# Visual Assessment

Date 10/11/2016

Time 13:57

Tide Rising

Location: SP 101-INT

Surf waves Calm

Lat 44.70977

Long -68.8388

Open Water Calm

Abundant 80-100%  
 Occasional 50-70%  
 Scattered 20-50%  
 Trace 5-20%  
 Trace 0-5%

Collected

I. Surf line  
 chips — size —  
 — Twigs + Bark  
 — Leaves + Twigs  
 — Grass  
 — Shredded Mulch (1-2")  
 — Sawdust (1/4")  
 — Particle (grain)  
 Base Sediment — Intermingled WCA (Y) N  
 sand (silt) Occ

II. WCA Exposed Above Mudline (Y) N  
 thickness on surface (est) 1 mm inch  
 Collected Care

WCA Below Mudline  
 deposition band offset from surfline (Y) N thickness 1 mm inches  
 Collected snowglobe

III Map Approx. Linear Extent - Tablet # 12

IV Edge Conditions —  
 — Vegetated  
 — Butched  
 — Rock (cliff.)

Photos Showing:  
 2:05  
 Video Showing:  
 N/A

V Bank Conditions —  
 — boulder outcrops  
 — sloping mudflats  
 — slumped mudflats

Checked 3/24/2017 KC



# Visual Assessment

Date 10/11/2016

Time 14:20

Tide Rising

Location: SP102-INT

Lat 44.70729

Long -68.8388

Surf waves Calm

Open water Calm

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace 5-20%  
Amount

Collected

I. Surf line

chips

size

Twigs Bark

Leaves + Twigs

some

Trace 0-5%

IR

Shredded Mulch (1-2")

Sawdust (1/4")

Particle (grain)

OCC

Base Sediment

sand silt

Intermingled WCH

(Y) N

II.

WCH Exposed Above Mudline

(Y) N

thickness on surface (est) 1mm inch

Collected

Core

WCH Below Mudline

deposition band offset from surfline

(Y) N

thickness

1mm inches

Collected Snowglobe

III

Map Approx. Linear Extent - Tablet # 12

IV

Edge Conditions

Vegetated

Rock (cliff)

Photos Showing:

2:27

V

Bank Conditions

boulder outcrops

sloping mudflats

slumped mudflats

Video Showing:

N/A

Checked  
3/24/2017  
KC

# Visual Assessment

Date 10/11/2016

Time 14:52

Tide Rising

Location: SP 103

Surf waves Calm

Lat 44.70371

Long -68.8360

Open Water Calm

Abundant 80-100%  
 Occasional 50-70%  
 Scattered 20-50%  
 Trace 5-20%  
 Amount

Collected

I. Surf line

Chips

size

Twigst Bark

Leaves + Twigs

Shredded Mulch (1-2")

Sawdust (1/4")

Particle (grain)

Trace 0-5%

IR

IR

Oce

Base Sediment  
sand silt

Intermingled WCH Y N Maybe

II. WCH Exposed Above Mudline

Y N

thickness on surface (est) 1mm

Collected

N/A b/c  
Very Shallow

WCH Below Mudline

deposition band offset from surfline

Y N thickness  
inches  
could not get  
in very close

Collected N/A b/c very shallow

III Map Approx. Linear Extent - Tablet # 12

IV

Edge Conditions

Vegetated

Bulked

Rock (cliff)

Photos Showing:

N/A

V

Bank Conditions

boulder outcrops

sloping mudflats

slumped mudflats

Video Showing:

N/A

NOTE: Very Shallow so, used boat prop and  
Observed disturbed suspended material

Checked  
3/24/2017  
KC

Visual Assessment

Date 10/11/2016

Time 15:10

Tide Rising

Location: SP104 - INT

surf waves calm

Lat 44.70044

Long -68.8393

Open water calm

Abundant 80-100%  
Occasional 50-70%  
Scattered 20-50%  
Trace 5-25%  
Amount

Collected

I. Surf line

chips

size

Twig + Bark

Leaves + Twigs

Grass

Trace 0-5%

TR

shredded Mulch (1-2")

Sawdust (1/4")

Particle (grain)

OCC

Base Sediment

sand silt

Intermingled WCH

(Y) N

II.

WCH Exposed Above Mudline

(Y) N

thickness on surface (est) 1 mm inch

Collected

Core

WCH Below Mudline

deposition band offset from surfline

(Y) N

thickness 1 mm inches

Collected snowglobe + Plankton Net bag

III

Map Approx. Linear Extent - Tablet # 12

IV

Edge Conditions

Vegetated

bulked

Rock (cliff.)

Photos Showing:

N/A

V

Bank Conditions

boulder outcrops

slipping mudflats

slumped mudflats

Video Showing:

N/A

Checked  
3/24/17  
KL



Visual Assessment

Date: 10/13/16

Time: 13:38

Tide: Falling

Location: SVOG1-INT

Surf Waves: ~1

Open Water: ~1-2

Lat 44.56231800

Long -68.77890483

Tablet # 12

I. Surf Line

Rocky shoreline unable to attain  
*Twigs + Bank*  
*Leaves & Twigs Grass*

Chip Size: Shredded Mulch (1-2") \_\_\_\_\_  
Sawdust (1/4") \_\_\_\_\_  
Particle (grain) \_\_\_\_\_

Abundant:	80-100%
Occasional:	50-70%
Scattered:	20-40%
Trace: <i>Some</i>	<i>5</i> 0-20%
<i>Trace</i>	<i>0-5%</i>

Base Sediment Intermingled Wood Chip (WC)  Y  N  
Sand Silt  
(Circle one)

II. A. WC <sup>14</sup>exposed above mudline

Thickness on surface (approx.)  1/2 inch.  N

Collected:  Y  N

Collection Method: Snowglobe retained with Kemmer

Comments: \_\_\_\_\_

III. B. WC <sup>14</sup>below mudline

Deposition band offset from surf line  Y  N

Collected:  Y  N

Thickness: \_\_\_\_\_

Collection Method: \_\_\_\_\_

Comments: Rocky shoreline unable to attain

III. Edge Conditions  
(Circle)

Vegetated \_\_\_\_\_  
Bulkhead Boulder Outcrops  
Rock (cliff) \_\_\_\_\_

IV. Bank Conditions  
(Circle)

Boulder Outcrops  
Sloping Mudflats \_\_\_\_\_  
Slumped Mudflats \_\_\_\_\_

Photos Showing:

1. N/A

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

Videos Showing:

1. N/A

2. \_\_\_\_\_

*Checked  
3/24/2017  
KC*

Visual Assessment

Date: 10/13/16

Time: 13:51

Tide: Falling

Location: SV002-INT

Surf Waves: ~1/2'

Open Water: ~1-2'

Lat 44.40749683 Long -68.177456300

Tablet # 12

I. Surf Line Rocky shoreline unable to attain  
*Twigs + Bark*  
*Leaves & Twigs*  
*Grass*

Chip Size: Shredded Mulch (1-2") \_\_\_\_\_  
Sawdust (1/4") \_\_\_\_\_  
Particle (grain) \_\_\_\_\_

Abundant:	80-100%
Occasional:	50-70%
Scattered:	20-40%
Trace:	0-20%
<i>some</i>	<i>5%</i>
<i>Trace</i>	<i>0-5%</i>

Base Sediment Intermingled Wood Chip (WC) Y N  
Sand Silt  
(Circle one)

II. A. WC exposed above mudline Y N  
Thickness on surface (approx.) 0 inch.

Collected: Y N

Collection Method: Kemmer

Comments: Clear

B. WC below mudline Collected: Y N  
Deposition band offset from surf line Y N Thickness: \_\_\_\_\_

Collection Method: \_\_\_\_\_

Comments: Rocky shoreline unable to attain

III. Edge Conditions  
(Circle)

Vegetated \_\_\_\_\_  
Bulkhead Boulder Outcrops  
Rock (cliff) \_\_\_\_\_

IV. Bank Conditions  
(Circle)

Boulder Outcrops  
Sloping Mudflats \_\_\_\_\_  
Slumped Mudflats \_\_\_\_\_

Photos Showing:

- N/A
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Videos Showing:

- N/A
- \_\_\_\_\_

*Checked  
3/24/2017  
KE*

Visual Assessment

Date: 10/13/16

Time: 14:30

Tide: Falling

Location: SV003-TAT

Surf Waves: ~1/2

Lat 44.50884767

Long -68.7695067

Open Water: ~1-2

Tablet # 1A

I. Surf Line

*Twigs + Bark*  
 Leaves & Twigs *Grass* \_\_\_\_\_  
 Chip Size: Shredded Mulch (1-2") \_\_\_\_\_  
 Sawdust (1/4") TR \_\_\_\_\_  
 Particle (grain) SCAFF \_\_\_\_\_

Abundant:	80-100%
Occasional:	50-70%
Scattered:	20-50%
Trace: <i>Some</i>	5-20%
<i>Trace</i>	0-5%

Base Sediment Intermingled Wood Chip (WCH) Y N  
 Sand SILT w/ sand (Circle one)

II. A. WC exposed above mudline

Thickness on surface (approx.) 0 inch. Collected: Y N

Collection Method: Kemmer not retained

Comments: Clear

B. WC below mudline

Deposition band offset from surf line Y N Collected: Y N  
 Thickness: \_\_\_\_\_

Collection Method: Petite Ponar not retained

Comments: \_\_\_\_\_

III. Edge Conditions (Circle)

Vegetated \_\_\_\_\_  
 Bulkhead Boulders  
 Rock (cliff) \_\_\_\_\_

IV. Bank Conditions (Circle)

Boulder Outcrops  
 Sloping Mudflats \_\_\_\_\_  
 Slumped Mudflats \_\_\_\_\_

Photos Showing:	
1.	<u>Clear Kemmer</u>
2.	_____
3.	_____
4.	_____
Videos Showing:	
1.	<u>N/A</u>
2.	_____

*Checked  
 3/24/2017  
 KC*



Visual Assessment

Date: 10/13/16

Time: 1517

Tide: R

Surf Waves: 0.5

Location: SV005-INT

Open Water: 1

Lat: 44.50892417

Long: -68.76474983

Tablet #: 12

I. Surf Line

Leaves&Twigs \_\_\_\_\_

Chip Size: Shredded Mulch (1-2") \_\_\_\_\_

Sawdust (1/4") SCAT \_\_\_\_\_

Particle (grain) \_\_\_\_\_

Abundant: 80-100%

Occasional: 50-70%

Scattered: 20-40%

Trace: Some 5-20%

Trace 0-5%

Base Sediment \_\_\_\_\_

Trace Sand Silt \_\_\_\_\_

(Circle one)

Intermingled Wood Chip (WCH) Y N

Shredded Mulch

II. A. WC exposed above mudline

Thickness on surface (approx.) \_\_\_\_\_ inch.

Collected: Y N

Collection Method: KEMMERER

Comments: \_\_\_\_\_

B. WC below mudline

Deposition band offset from surf line Y N

Collected: Y N

Thickness: SCAT

Collection Method: POWER (P)

Comments: \_\_\_\_\_

III. Edge Conditions (Circle)

- Vegetated
- Bulkhead
- Rock (cliff)

IV. Bank Conditions (Circle)

- Boulder Outcrops
- Sloping Mudflats
- Slumped Mudflats

Photos Showing:

- N/A
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Videos Showing:

- N/A
- \_\_\_\_\_

Checked 3/24/2017 KC

Visual Assessment

Date: 10/13/2016

Time: 15:30

Tide: Rising

Location: SV006-TWT

Surf Waves: ~1/2 ft

Lat 44.50854100

Long -68.7619450

Open Water: 1-2

Tablet # 12

I. Surf Line

Chip Size: Twigst Bark  
 Leaves & Twigs Grass  
 Shredded Mulch (1-2") \_\_\_\_\_  
 Sawdust (1/4") \_\_\_\_\_  
 Particle (grain) \_\_\_\_\_

Abundant:	80-100%
Occasional:	50-70%
Scattered:	20-40%
Trace:	<u>Some</u> 5-20%
	<u>Trace</u> 0-5%

Base Sediment \_\_\_\_\_  
 Sand Silt \_\_\_\_\_  
 Intermingled Wood Chip (WC) Y N  
 (Circle one)

II. A. WC exposed above mudline

Thickness on surface (approx.) \_\_\_\_\_ inch. Collected: Y N

Collection Method: \_\_\_\_\_

Comments: \_\_\_\_\_

B. WC below mudline

Deposition band offset from surf line Y N Collected: Y N  
 Thickness: \_\_\_\_\_

Collection Method: \_\_\_\_\_

Comments: House so just visual inspection from a distance

III. Edge Conditions (Circle)

Vegetated \_\_\_\_\_  
 Bulkhead \_\_\_\_\_  
 Rock (cliff) Boulder

IV. Bank Conditions (Circle)

Boulder Outcrops \_\_\_\_\_  
Sloping Mudflats  
 Slumped Mudflats \_\_\_\_\_

Photos Showing:

- N/A
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Videos Showing:

- N/A
- \_\_\_\_\_

Checked  
3/24/2017  
KL

Visual Assessment

Date: 10/13/2016

Time: 15:36

Tide: Rising

Location: SVOOZ-INT

Surf Waves: ~1/2'

Open Water: ~1-2'

Lat 44.50425417

Long -68.7744367

Tablet # 12

I. Surf Line

Twigs + Bank  
 Leaves & Twigs - Grass  
 Chip Size: Shredded Mulch (1-2")  
 Sawdust (1/4") SCAT  
 Particle (grain) SCAT

Abundant:	80-100%
Occasional:	50-70%
Scattered:	20-40%
Trace:	Some 5-20%
	Trace 0-5%

Base Sediment  
 Sand Silt  
 (Circle one)

Intermingled Wood Chip (WCH) (Y) N

II. A. WC exposed above mudline

Thickness on surface (approx.) ~3/16 inch. (Y) N

Collected: (Y) N

Collection Method: Kemmerer not retained

Comments:

B. WC below mudline

Deposition band offset from surf line (Y) N

Collected: (Y) N  
Thickness: ~2"

Collection Method: Petite Ponar

Comments: Scattered sawdust material intermingled

III. Edge Conditions (Circle)

Vegetated  
 Bulkhead  
 Rock (cliff)

IV. Bank Conditions (Circle)

Boulder Outcrops  
 Sloping Mudflats  
 Slumped Mudflats

Photos Showing:

1. N/A
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

Videos Showing:

1. N/A
2. \_\_\_\_\_



Visual Assessment

Date: 10/13/16

Time: 16:10

Tide: Rising

Location: SVO08-INT

Surf Waves: 2-3'

Open Water: ~1'

Lat 44.51213358 Long -68.76225967

Tablet # 12

I. Surf Line

Twigs + Bark  
Leaves & Twigs Grass  
Chip Size: Shredded Mulch (1-2")  
Sawdust (1/4") TR  
Particle (grain)

Abundant: 80-100%  
Occasional: 50-70%  
Scattered: 20-40%  
Trace: Some 5-20%  
Trace! 0-5%

Base Sediment Intermingled Wood Chip (WC) (Y) N  
Sand Silt TR SOME (Circle one)

II. A. WC exposed above mudline

Thickness on surface (approx.) ~ 1/16 inch

Collected: (Y) N

Collection Method: Kommerer

Comments: Not retained

B. WC below mudline

Deposition band offset from surf line Y (N)

Collected: (Y) N  
Thickness: ~ 2'

Collection Method: Petit Ponar not retained

Comments: TR Sawdust

III. Edge Conditions (Circle)

Vegetated  
Bulkhead  
Rock (cliff)

IV. Bank Conditions (Circle)

Boulder Outcrops  
Sloping Mudflats  
Stumped Mudflats

Photos Showing:

- 1. N/A
- 2.
- 3.
- 4.

Videos Showing:

- 1. N/A
- 2.

Checked 3/24/2017 KC

## **APPENDIX D3**

### **Work Order 4A-020: Field Data Records**

Composite Lab  
 Sample ID (ID) Bu-TRAP1+3  
 (e.g., "CJ01THRU22")

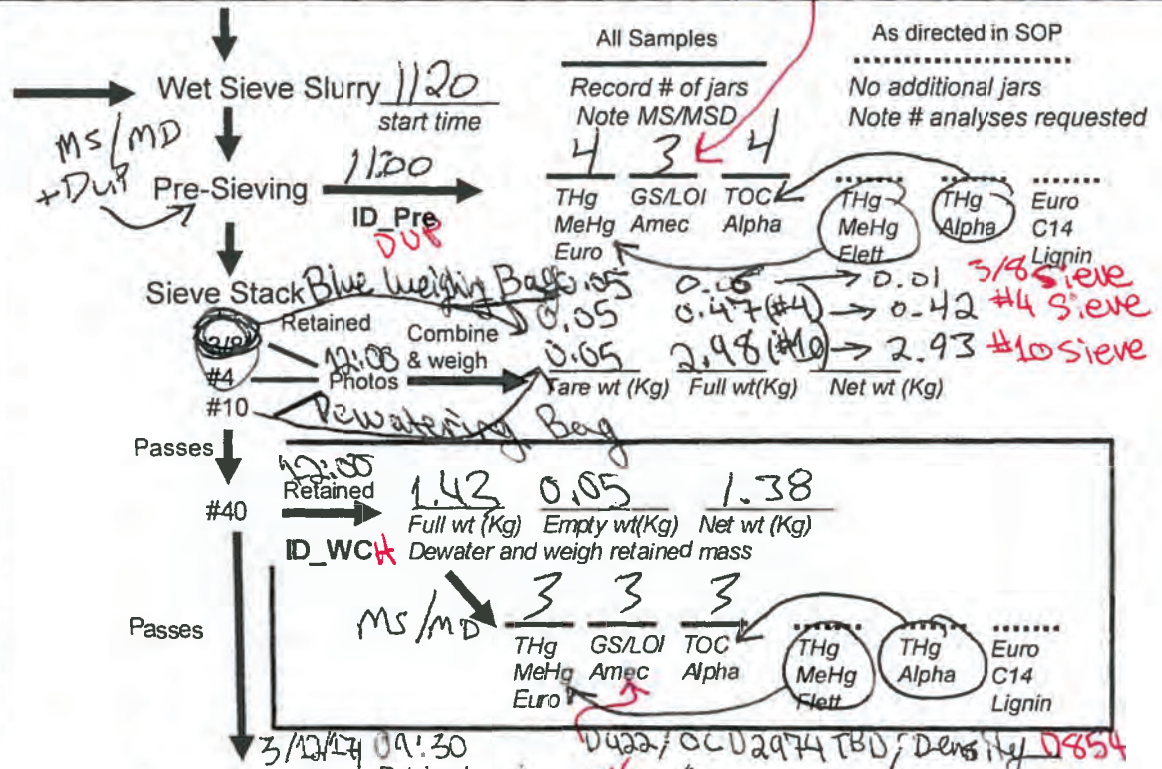
Date 3/11/2017 Start time 1030

Prepared by DY, KC, MM  
 initials of field lead and assists

Composite Bu-TRAP1 Bu-TRAP3  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ-01, CJ-2, CJ-03, -1 gal. each."

River Water 10‰  
 Batch B field salinity collected 3/11/2017  
 pH, conductivity 0.15  
 salinity (Alpha) 0900

Slurry Source  
6.16 0.43 5.73  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)



0.422 Grain Size  
0.454 Density  
0.2974 @ TSD

Dewater Date 3/11/2017 Start 12:00 End 09:20  
 Dewater Time

mass of water collected in aquaria 2 2  
7.59 0.06 7.53 0.47  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg) MeHg Euro  
 2.78 + 4.81 = 7.59  
 Caution Acid (round bottle)  
 ID\_ULIQ Dup 17:45

Dewater Bag Retained 1 3 1  
 ID\_SED THg GS/LOI TOC THg THg Euro MeHg Amec Alpha MeHg Alpha C14 Lignin  
 3/11/17 18:40 Filtered 2 THg Euro (square bottle)  
 ID\_FLIQ Dup 18:35  
 Checked 3/27/2017 KC

End Date 3/12/2017  
 End Time 09:45



Composite Lab  
 Sample ID (ID) FF 5354  
 (e.g., "CJ01THRU22")

Date 3/12/17 Start time 10:30

Prepared by Mm, KC  
 initials of field lead and assists

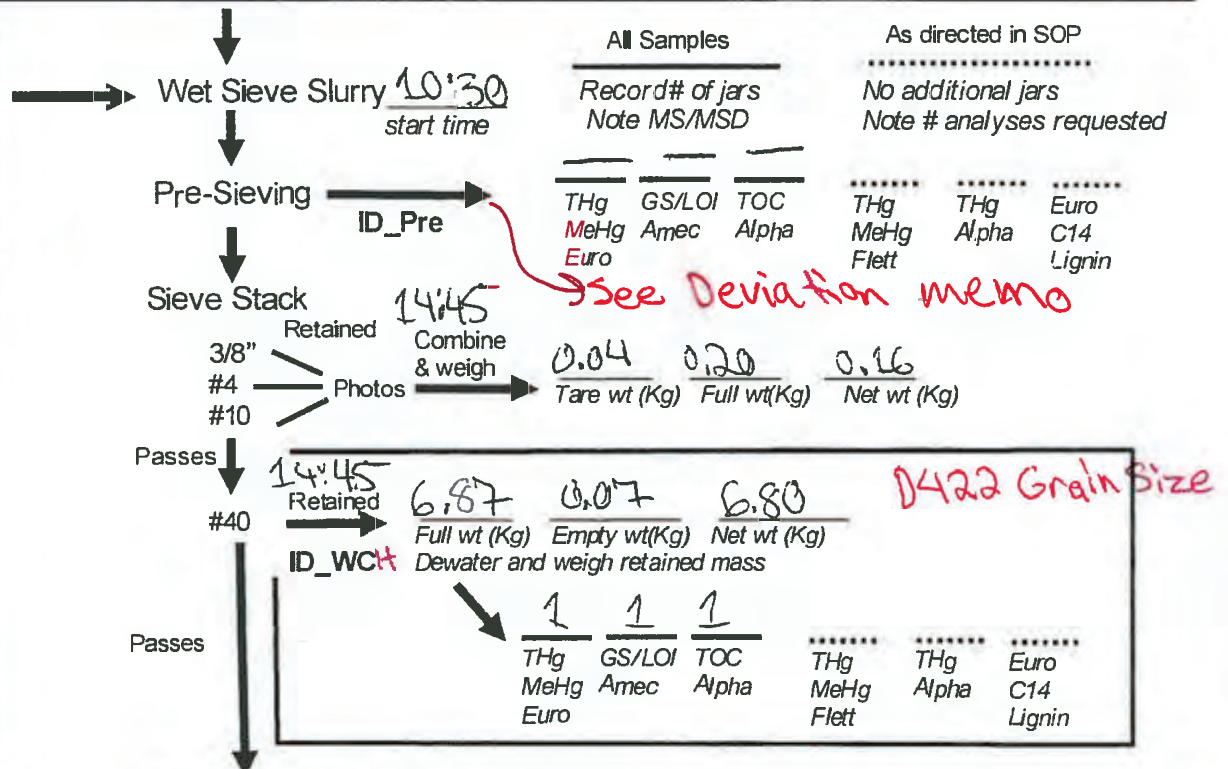
Composite FF 53, FF 54  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ-2, CJ-03, -1 gal. each."

~~Overlaying Water~~  
~~River Water~~ 20.00  
 field salinity

pH, conductivity  
 salinity (Alpha) \_\_\_\_\_

Slurry Source

Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
_____	_____	_____
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
_____	_____	_____
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
_____	_____	_____



Dewater Date 3/12/17 Start 14:30 End 3/13/2017  
 Dewater Time 14:30 End 20:00

mass of water collected in aquaria

Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)	MeHg Euro (round bottle)	THg Euro (square bottle)
_____	_____	_____	_____	_____

Caution Acid

Checked 3/27/2017  
 KC

End Date 3/13/2017  
 End Time ~11:00

Composite Lab  
 Sample ID (ID) BUS0THRU52  
 (e.g., "CJ01THRU22")

Date 2/10/2017 Start time 14:00

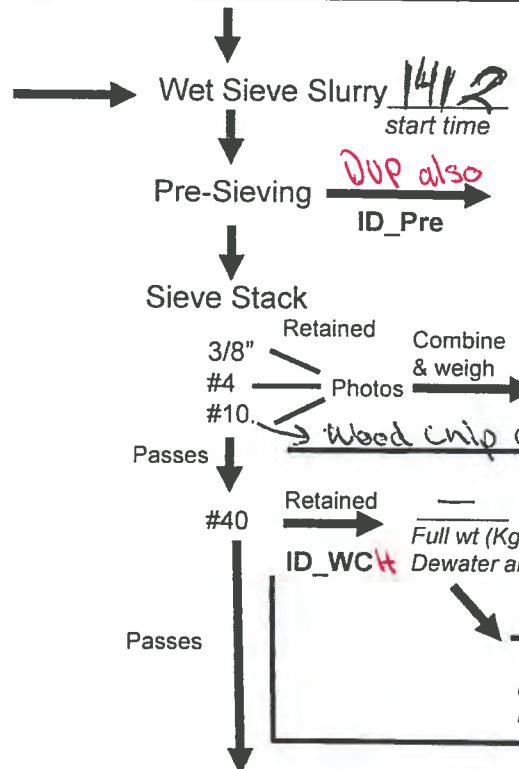
Prepared by MM/KP/KC  
 initials of field lead and assists

Composite BUS0, BUS1, BUS2  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ-2, CJ-03, ~1 gal. each."

River Water 16  
 BATCH3 field salinity  
 pH, conductivity  
 salinity (Alpha) N/A

Slurry Source

1	<u>6.85</u> Full wt (Kg)	<u>.80</u> Empty wt(Kg)	<u>6.05</u> Net wt (Kg)
2	<u>6.19</u> Full wt (Kg)	<u>net added</u> Empty wt(Kg)	<u>5.29</u> Net wt (Kg)
3	<u>6.54</u> Full wt (Kg)	<u>1.00</u> Empty wt(Kg)	<u>5.54</u> Net wt (Kg)
	Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)



All Samples			As directed in SOP		
Record # of jars Note MS/MSD			No additional jars Note # analyses requested		
1	2	1	0	0	0
THg	GS/LOI	TOC	THg	THg	Euro
MeHg	Amec	Alpha	MeHg	Alpha	C14
Euro			Flett		Lignin

*Not Recorded*  
 D 422 w/ Hydrometer  
 D2974@TBD, 440C,  
 550C, +750C

Retained 1 2 1  
 ID\_WCH Dewater and weigh retained mass

1	1	1	0	0	0
THg	GS/LOI	TOC	THg	THg	Euro
MeHg	Amec	Alpha	MeHg	Alpha	C14
Euro			Flett		Lignin

*D 2974@TBD  
 @440C  
 @550C  
 @750C*

Start | End  
 Dewater Date 2/10/2017 | 16:00

Dewater Time 2/11/2017 | 14:30

mass of water collected in aquaria

<u>5.19</u> Full wt (Kg)	<u>0.10</u> Empty wt(Kg)	<u>5.09</u> Net wt (Kg)	<u>1</u> MeHg Euro (round bottle)	<u>1</u> THg Euro (square bottle)
-----------------------------	-----------------------------	----------------------------	--	--

Caution Acid

Retained 1 2 1  
 ID\_SED

1	2	1	0	0	0
THg	GS/LOI	TOC	THg	THg	Euro
MeHg	Amec	Alpha	MeHg	Alpha	C14
Euro			Flett		Lignin

Filtered 1  
 ID\_FLIQ

1
THg Euro (square bottle)

End Date 2/11/2017

End Time 15:00

*Checked  
 3/27/2017  
 KC*

*KK*

Composite Lab

Sample ID (ID) MM50 thru 56  
(e.g., "CJ01THRU22")

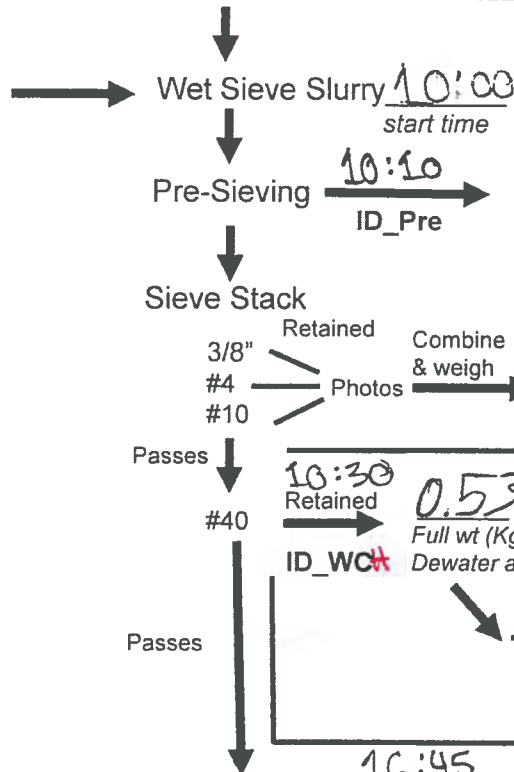
Date 3/9/2017 Start time 0930

Prepared by KC, MM, DY  
initials of field lead and assists

Composite MM50, MM51, MM52, MM53, MM54, MM55, MM56  
Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ-01, CJ-2, CJ-03, ~1 gal. each."

River Water 4‰  
Batch 6 field salinity collected 3/7/2017  
pH, conductivity salinity (Alpha) 1730

Slurry Source  
6.65 0.42 6.23  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)



All Samples Record # of jars Note MS/MSD  
As directed in SOP No additional jars Note # analyses requested  
1 1 1  
THg GS/LOI TOC THg THg  
MeHg Amec Alpha MeHg Alpha  
Euro D422 OC D274 TBD Euro  
C14 Lignin

Combine & weigh  
Tare wt (Kg) Full wt(Kg) Net wt (Kg)  
0.06 0.13 0.07

10:30 Retained 0.53 0.07 0.46  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
ID\_WC# Dewater and weigh retained mass  
Triple Replicates  
1 1 1  
THg GS/LOI TOC THg THg  
MeHg Amec Alpha MeHg Alpha  
Euro D422 OC D274 TBD Euro  
C14 Lignin

Dewater Date 3/9/2017 | 3/10/2017  
Dewater Time 13:20 | 16:40

16:45 Retained 4 2 4 +5 Record Samples  
ID\_SED DUP  
THg GS/LOI TOC THg THg  
MeHg Amec Alpha MeHg Alpha  
Euro D422 OC D274 TBD Euro  
C14 Lignin

mass of water collected in aquaria  
10.00 (0.06) 9.88  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
4.09 +5.91  
Caution Acid → (round bottle)  
MeHg Euro (square bottle)  
THg Euro (square bottle)  
ID\_ULIQ

17:20 Filtered 1  
ID\_FLIQ  
THg Euro (square bottle)  
Checked 3/27/2017 KC  
End Date 3/10/2017  
End Time 17:30



Composite Lab  
 Sample ID (ID) FF5152  
 (e.g., "CJ01THRU22")

Date 03/08/2017 Start time 13:30

Prepared by LCMM, DY  
 initials of field lead and assists

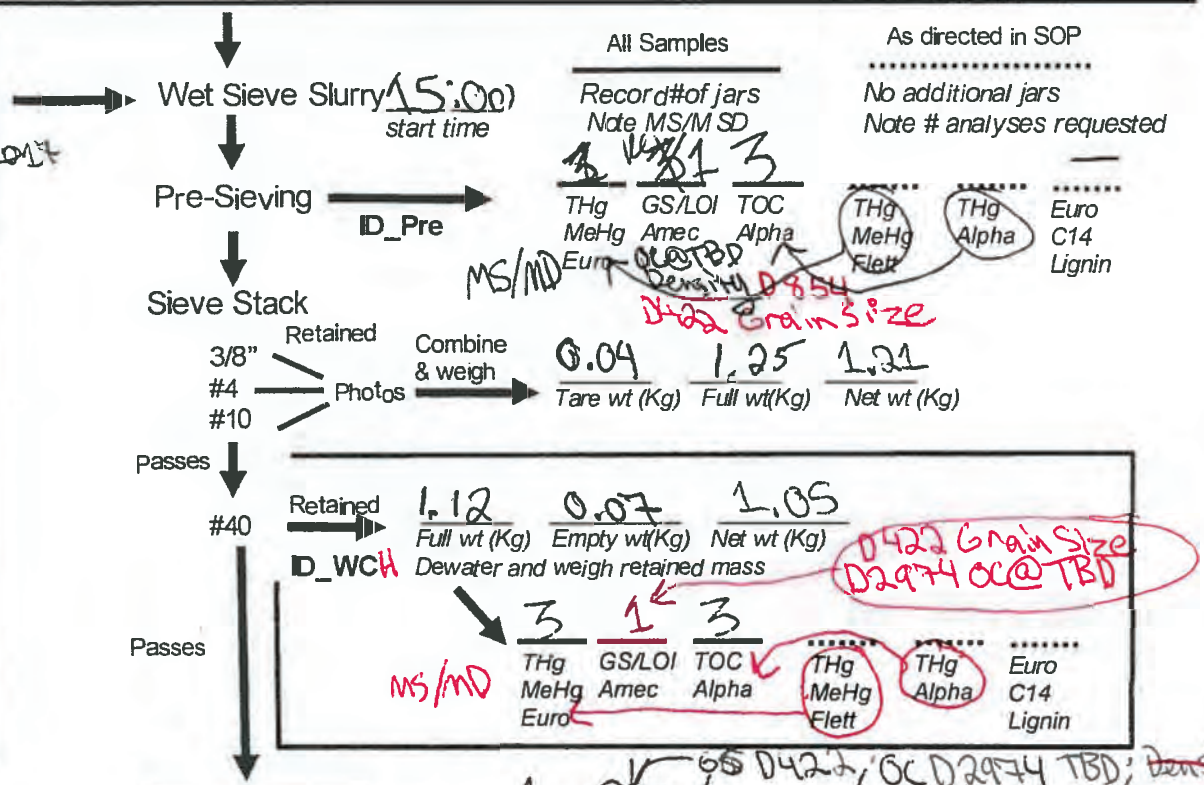
Composite FF51 + FF52  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ -2, CJ-03, ~1 gal. each."

River Water 4% field salinity  
 Batch 6 collected 03/07/2017  
 pH, conductivity  
 salinity (Alpha) 1730

Slurry Source  
5.54 0.92 4.62  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)

Full wt (Kg) Empty wt(Kg) Net wt (Kg)

Full wt (Kg) Empty wt(Kg) Net wt (Kg)



Start | End  
 Dewater Date 03/08/2017 | 03/09/2017  
 Dewater Time 1500 | 1310

mass of water collected in aquaria  
9.35 0.06 9.29  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)

MeHg Euro (round bottle) 4  
 THg Euro (square bottle) 4

Caution Acid  
 MS/MD + DUP

**Aquarium**  
 Unfiltered: ID\_ULIQ  
 Filtered: 4 THg Euro (square bottle) ID\_FLIQ  
 Checked 3/27/2017  
 MS/MD + DUP

End Date 3/9/2017  
 End Time 16:30

Composite Lab  
 Sample ID (ID) ON1  
 (e.g., "CJ01THRU22")

Date 3/10/2017 Start time 9:00

Prepared by DY, KC, MM  
 initials of field lead and assists

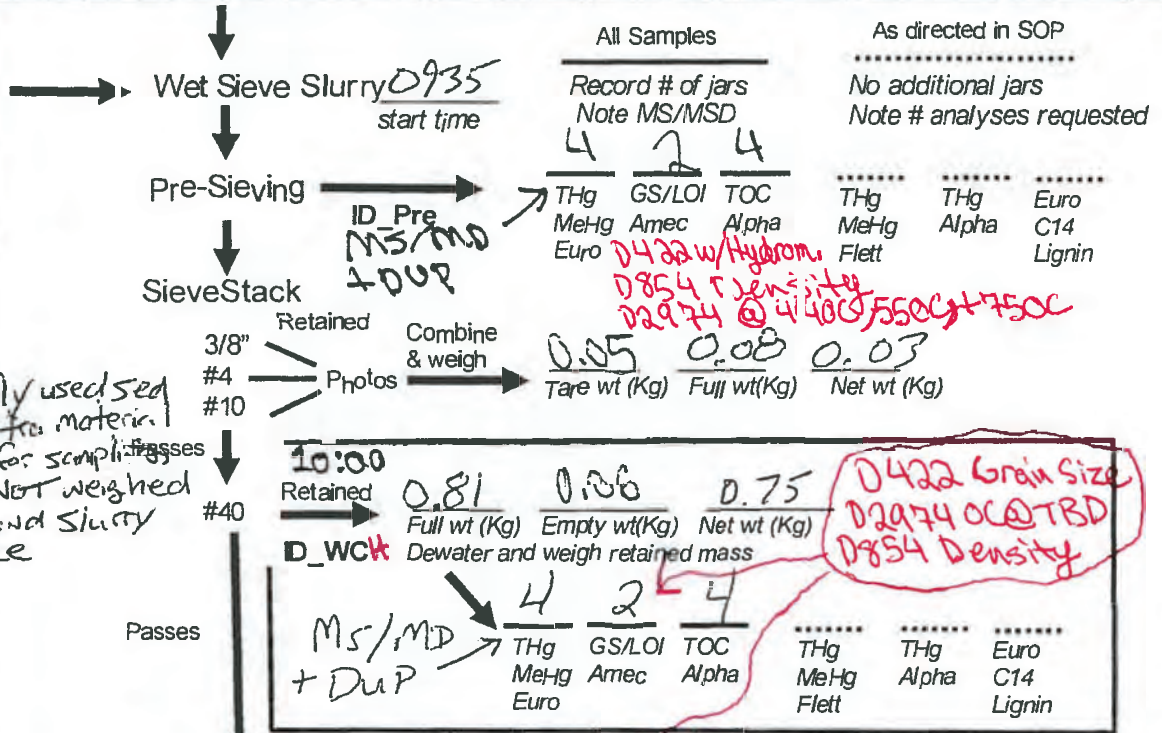
Composite ON1  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ -2, CJ-03, ~1 gal. each."

River Water 6‰  
 field salinity  
 Batch 7 Collected  
 pH, conductivity  
 salinity (Alpha) = 1815  
3/8/2017

Slurry Source  

<u>4.95</u>	<u>0.43</u>	<u>4.52</u>
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
<u>5.00</u>	<u>0.41</u>	<u>4.59</u>
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
_____	_____	_____
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)

*Note: Only used sed for extra material volume for sampling. Water NOT weighed for second slurry source*



Dewater Date 3/10/17 3/11/17  
 Dewater Time 13:30 12:30

mass of water collected in aquaria  

<u>14.40</u>	<u>0.12</u>	<u>14.28</u>
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
<u>5.97</u>		
<u>+8.43</u>		

Caution Acid

Unfiltered ID\_ULIQ

Filtered ID\_FLIQ

MeHg THg Euro (round bottle)  
 MeHg THg Euro (square bottle)

Dewater Bag 12:40 Retained 4 3 4  
 ID\_SED

THg	GS/LOI	TOC	THg	THg	Euro
MeHg	Amec	Alpha	MeHg	Alpha	C14
Euro			Euro	Flett	Lignin

Aquarium

Unfiltered ID\_ULIQ

Filtered ID\_FLIQ

0  
 THg Euro (square bottle)

Checked  
3/27/2017  
KC

End Date 3/11/17  
 End Time 13:00



# Mendall Marsh Timeline

☐ Pulled from Deep Freeze to Thaw  
2/5/2017

☐ Thawed and placed in Fridge  
2/8/2017

☐ Start homogenizing and processing discrete samples  
→ 2/11/2017 @ 8:45 AM: pull buckets from fridge  
and figure out amount of samples to be  
collected

MM-402e-sub ~ 0.25 gall solids + ~ 3 gall liquid

MM-401C ~ 0.5 gall solids + ~ 1.75 gall liquid

MM-405C-sub ~ 0.75-gall solids + ~ 3 gall liquid

MM-404C-sub > 1" dusting bottom 5-gallon bucket + 0.75 gallons liquid

MM-406C-sub ~ 1 gallon solids + ~ 0.75 gallons liquid

→ 2/11/2017 @ 9:05 AM: Due to limited solids and  
amount of liquids no discrete samples were collected.

Buckets were composited with ~ 1 gallon of over  
laying from each and a set of Total Hg + Methyl Hg

unfiltered samples collected. The rest of the over  
laying water was decanted off into the Penobscott

River. The solids were composited into a decanting  
bag. NOTE: All the solids were combined with

approximated volumes listed above. During the  
decanting process

"New mud" was observed a light brown fine silt  
and removed to be placed into a dewar bag

to be sampled separately. The NEW MUD was a phase 2  
observation.

MM-302-sub  
~ 0.25 gall solids  
~ 3 gall liquids

MMST-THRU62-OL-0212017  
2/11/2017  
5:10:15  
@ 10:45  
By: MM



Composite Lab  
 Sample ID (ID) FF-TRAP1+3  
 (e.g., "CJ01THRU22")

Date 3/11/2017 Start time 14:00

Prepared by DY, KC, MM  
 initials of field lead and assists

Composite FF-TRAP1, FF-TRAP3  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ-01, CJ-2, CJ-03, ~1 gal. each."

*0422 w/ Hydrometer  
 02974 00 @ 440C, 550C, +750C*

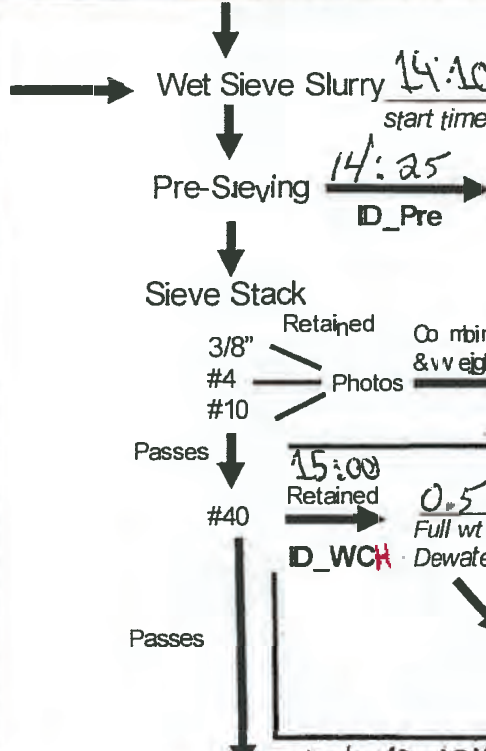
River Water 10°/00  
 Batch # 8 field salinity collected 3/11/2017  
 pH, conductivity 09:00  
 salinity (Alpha) \_\_\_\_\_

Slurry Source  
256 0.83 1.73  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)

\_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)

\_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)

\_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)



All Samples Record # of jars Note MS/MSD

1	2	1
THg	GS/LOI	TOC
MeHg	Amec	Alpha
Euro		
THg	THg	Euro
MeHg	Alpha	C14
Flett		Lignin

As directed in SOP  
 No additional jars  
 Note # analyses requested

Sieve Stack Retained Co combine & v weigh Photos

3/8"	#4	#10
0.07	0.07	0.07
→ 0.08	→ 0.50	→ 0.76
→ 0.01	→ 0.43	→ 0.69
Tare wt (Kg)	Full wt(Kg)	Net wt (Kg)

Passes #40 Retained 15:00

0.51	0.08	0.43
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)

Dewater Bag Retained 3/12/2017 10:10

1	1	1
THg	GS/LOI	TOC
MeHg	Amec	Alpha
Euro		
THg	THg	Euro
MeHg	Alpha	C14
Flett		Lignin

*0422  
 02974 00 @ 440C, 550C, +750C*

*0422 w/ Hydrometer; D754 Density  
 02974 @ 440C, 550C, +750C*

Dewater Date 3/11/17 Start 15:05 End 3/12/2017 10:00  
 mass of water collected in aquaria  
6.64 0.06 8.58  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)

Caution Acid → (round bottle) MeHg Euro (square bottle) Unfiltered ID\_ULIQ

Dewater Bag Retained 3/12/2017 10:10 ID\_SED

1	1	1
THg	GS/LOI	TOC
MeHg	Amec	Alpha
Euro		
THg	THg	Euro
MeHg	Alpha	C14
Flett		Lignin

Aquarium Filtered ID\_FLIQ

0
THg
Euro
(square bottle)

Checked 3/27/2017 KC

End Date 3/12/2017  
 End Time 10:20

Composite Lab  
Sample ID (ID)

CJ01THRU22 Date 2/9/17 Start time 09<sup>00</sup>

Prepared by KBA/CP/MA/KC  
initials of field lead and assists

(e.g., "CJ01THRU22")

Disc 01 Disc ~~02~~ Disc 03 Disc 04 Disc 05 Disc 06 Disc 07 Disc 08 Disc 09 Disc 10  
Disc 11 Disc 12 Disc 13 Disc 14 Disc 15 Disc 16 Disc 17 Disc 18 Disc 19 Disc 20  
Disc 21 Disc 22

Enter the station number, e.g. 01, 02, etc

River Water 13.5  
field salinity

pH, conductivity  
salinity (alpha) NA

Wet Sieve Slurry 15:49  
time

Pre-Sieving  
ID\_Pre  
MS/MD

All Samples As directed in SOP

3	1	3	0	0	1
THg	GS/LOI	TOC	THg	THg	Euro
MeHg	Amec	Alpha	MeHg	Alpha	C14
Euro			Flett		Lignin

Enter # Bottles Included IN

D422 w/ Hydrom  
D2974 @ TBD,  
440C, 550C,  
750C

Remarks:  
MS/MSD  
except WC and  
C14 and Lignin

Slurry Source

6.80	2.70	5.60
6.85	4.00	5.85
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
6.92	0.98	5.94
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
6.71	1.01	5.70
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)

Sieve Stack

3/8#	Retained	Combine & weigh	0.07	0.63	0.56
#4	Photos		Tare wt (Kg)	Full wt(Kg)	Net wt (Kg)
#10					

Passes  
#40 Retained  
ID\_WCH

3	1	3	0	0	1
THg	GS/LOI	TOC	THg	THg	Euro
MeHg	Amec	Alpha	MeHg	Alpha	C14
Euro			Flett		Lignin

Included IN

Passes  
Dewater Bag Retained  
ID\_SED  
MS/MD

3	1	3	0	0	1
THg	GS/LOI	TOC	THg	THg	Euro
MeHg	Amec	Alpha	MeHg	Alpha	C14
Euro			Flett		Lignin

Included IN

Passes  
Aquarium Unfiltered  
ID\_ULIQ  
MS/MD

3					
THg					
Euro					

Filtered  
ID\_FLIQ  
MS/MD

D422 w/ Hydrometer  
D2974 @ 440C, 550C, 750C  
End Date 2/11/2017  
End time 13:40

Water weight  
5.18  
0.12 empty bag  
5.06

WCH  
Full - 0.90  
Empty 0.25  
Net  
Full 0.65  
Empty 0.07  
Net

Caution Acid  
3 MeHg Euro (round bottle)  
3 THg Euro (square bottle)

Checked  
32.7/2017  
KC

MS water tare Full = 8.76 net = 8.71



Composite Lab  
 Sample ID (ID) VE-TRAP1  
 (e.g., "CJ01THRU22")

Date 3/11/17 Start time 15:40

Prepared by DY, MM, KC  
 initials of field lead and assists

Composite VE-TRAP1 (ONLY sample collected = VE-TRAP1 - PRE)  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ -2, CJ-03, ~1 gal. each."

River Water       
 field salinity

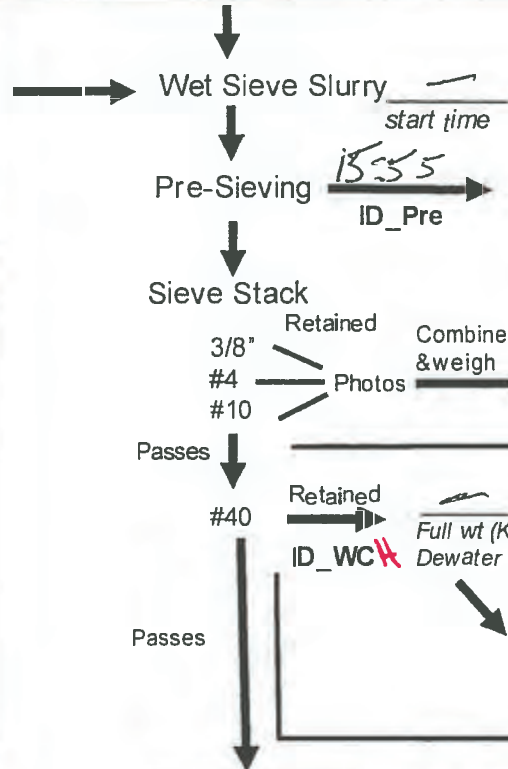
pH, conductivity  
 salinity (Alpha)     

Slurry Source

2.44 0.42 2.02  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)

                
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)

                
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)



All Samples  
 Record # of jars  
 Note MS/MSD

1	2	1
THg	GS/LOI	TOC
MeHg	AmeC	Alpha
Euro	D402 Grain Size	
	D2074 @ TSD	

As directed in SOP  
 No additional jars  
 Note # analyses requested

THg	THg	Euro
MeHg	Alpha	C14
Flett		Lignin

Sieve Stack

3/8" Retained  
 #4 Photos  
 #10 Photos

Combine & weigh

Tare wt (Kg) Full wt(Kg) Net wt (Kg)

Passes #40

Retained ID\_WC

Full wt (Kg) Empty wt(Kg) Net wt (Kg)

Dewater and weigh retained mass

THg	GS/LOI	TOG
MeHg	AmeC	Alpha
Euro		

THg THg Euro  
 MeHg Alpha C14  
 Flett Lignin

Dewater Bag

Retained ID\_SED

THg	GS/LOI	TOG
MeHg	AmeC	Alpha
Euro		

THg THg Euro  
 MeHg Alpha G14  
 Flett Lignin

Dewater Date Start      End     

Dewater Time          

mass of water collected in aquaria

               0 0  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg) MeHg THg  
 Euro Euro  
 (round (square  
 bottle) bottle)

**Cauton Acid**

Unfiltered ID\_ULIQ

Passes

Filtered ID\_FLIQ

THg  
 Euro  
 (square  
 bottle)

Checked  
 3/27/2017  
 KC

End Date 3/11/2017  
 End Time 16:05



# Additional Mendall Marsh notes on "Mendall Marsh Timeline"

Composite Lab  
 Sample ID (ID) MM57THRU62  
 (e.g., "CJ01THRU22")

Date 2/14/2017 Start time 0930

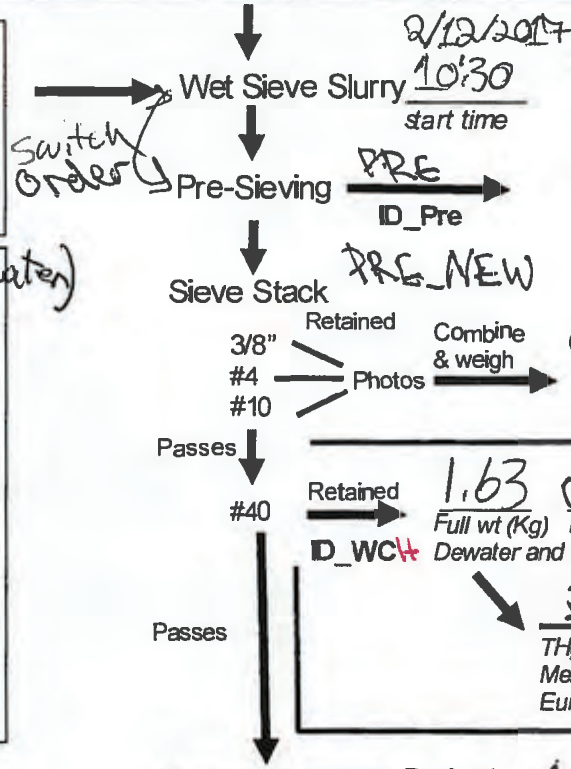
Prepared by MM/CP/KC  
 initials of field lead and assists

Composite MM57, MM58, MM59, MM60, MM61, MM62  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ-2, CJ-03, ~1 gal. each."

River Water 14%  
 field salinity  
 Batch 4  
 pH, conductivity  
 salinity (Alpha) ---

Slurry Source (Before adding water)  
 No Record ---  

Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
<u>5.95</u>	<u>0.89</u>	<u>5.06</u>
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)



All Samples  
 Record# of jars Note MS/MSD  

1	1	1
THg	GS/LOI	TOC
MeHg	Amec	Alpha
Euro		

 As directed in SOP  
 No additional jars  
 Note # analyses requested  
 THg MeHg THg Alpha  
 Flett  
 Euro C14 Lignin

0.06 0.25 0.19  
 Tare wt (Kg) Full wt(Kg) Net wt (Kg)

Retained 1.63 0.06 1.57  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 ID\_WCH  
 Dewater and weigh retained mass  

1	1	1
THg	GS/LOI	TOG
MeHg	Amec	Alpha
Euro		

 THg MeHg THg Alpha  
 Flett  
 Euro C14 Lignin

Dewater Bag  
 Retained 1 1 1  
 ID\_SED  

1	1	1
THg	GS/LOI	TOC
MeHg	Amec	Alpha
Euro		

 THg MeHg THg Alpha  
 Flett  
 Euro C14 Lignin

Start 2/12/2017 End 13:00  
 Dewater Date  
 Start 2/14/2017 End 16:00  
 Dewater Time  
 mass of water collected in aquaria  

<u>7.99</u>	<u>0.10</u>	<u>2.99</u>
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
<u>+3.85</u>	<u>+0.10</u>	<u>+3.75</u>
<u>11.84</u>	<u>0.20</u>	<u>11.64</u>

 Caution Acid  
 MeHg Euro (round bottle)  
 THg Euro (square bottle)  
 ID\_ULIQ

Filtered 1  
 THg Euro (square bottle)  
 ID\_FLIQ  
 2/15/2017  
 End Date 2/14/2017  
 End Time 17:00  
 11:00  
 Checked 3/27/2017 KC

0422 w/ Hydro  
 02974 @ TBD  
 @ 440C  
 @ 550C  
 @ 750C

0422 Grain Size  
 02974 @ TBD  
 @ 440C  
 @ 550C  
 @ 750C

0422 Grain Size  
 02974 @ 440C, 550C, +750C

Composite Lab  
 Sample ID (ID) MM64 thru 67  
 (e.g., "CJ01THRU22")

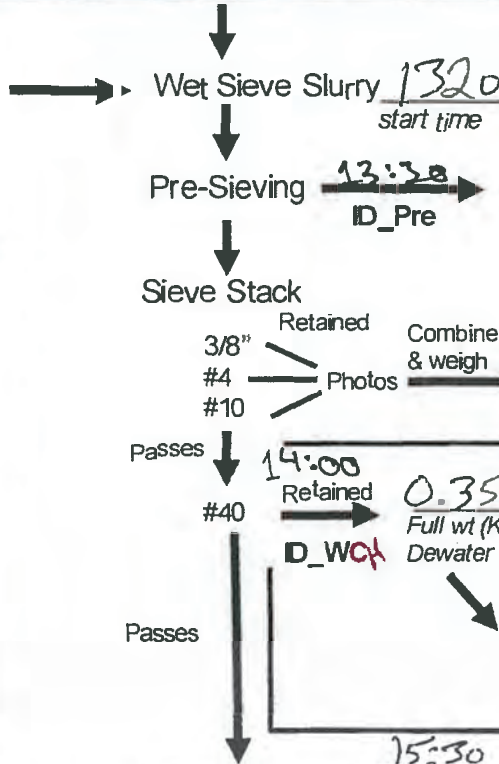
Date 3/9/2017 Start time 1230

Prepared by KC, MM, DY  
 initials of field lead and assists

Composite MW64, MW65, MW66, MW67  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ -2, CJ-03, ~1 gal. each."

River Water 40/00  
 Batch 6 field salinity collected 3/7/2017  
 pH, conductivity 1730  
 salinity (Alpha) \_\_\_\_\_

Slurry Source  
4.42 0.42 4.00  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)



All Samples			As directed in SOP		
Record # of jars Note MS/MSD			No additional jars Note # analyses requested		
1	1	1	.....	.....	.....
THg	GS/LOI	TOC	THg	THg	Euro
MeHg	Amec	Alpha	MeHg	Alpha	C14
Euro	D422		Flett		Lignin
	02974TBD				

3/8" Retained  
 #4 Photos  
 #10  
 Combine & weigh  
 Tare wt (Kg) Full wt(Kg) Net wt (Kg)  
0.05 0.08 0.03

Passes #40 Retained 14:00  
0.35 0.06 0.29  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 D\_WCA  
 Dewater and weigh retained mass  
 THg GS/LOI TOC  
 MeHg Amec Alpha  
 Euro D422  
 THg THg Euro  
 MeHg Alpha C14  
 Flett Lignin

Dewater Date 3/9/2017 Start 19:00 End 3/10/2017  
 Dewater Time 19:00 15:25

Dewater Bag Retained 15:30  
 ID\_SED DUP  
 THg GS/LOI TOC  
 MeHg Amec Alpha  
 Euro  
 THg THg Euro  
 MeHg Alpha C14  
 Flett Lignin  
 Record Samples  
 1 2 1 + 3

mass of water collected in aquaria  
12.66 12.54  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
6.50 0.12  
 +6.16  
 Caution Acid  
 MeHg THg  
 Euro Euro  
 (round bottle) (square bottle)  
 Unfiltered  
 ID\_ULIQ

Aquarium Passes 16:00  
 Filtered 17:00  
 ID\_FLIQ 1  
 THg Euro  
 (square bottle)  
 Checked 3/27/2017  
 KC  
 End Date 3/10/2017  
 End Time 1730



Composite Lab  
 Sample ID (ID) MM68 thru 71  
 (e.g., "CJ01THRU22")

Date 3/9/2017 Start time 1110

Prepared by KC, MM, DY  
 initials of field lead and assists

Composite MM68, MM69, MM70, MM71  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ -2, CJ-03, ~1 gal. each."

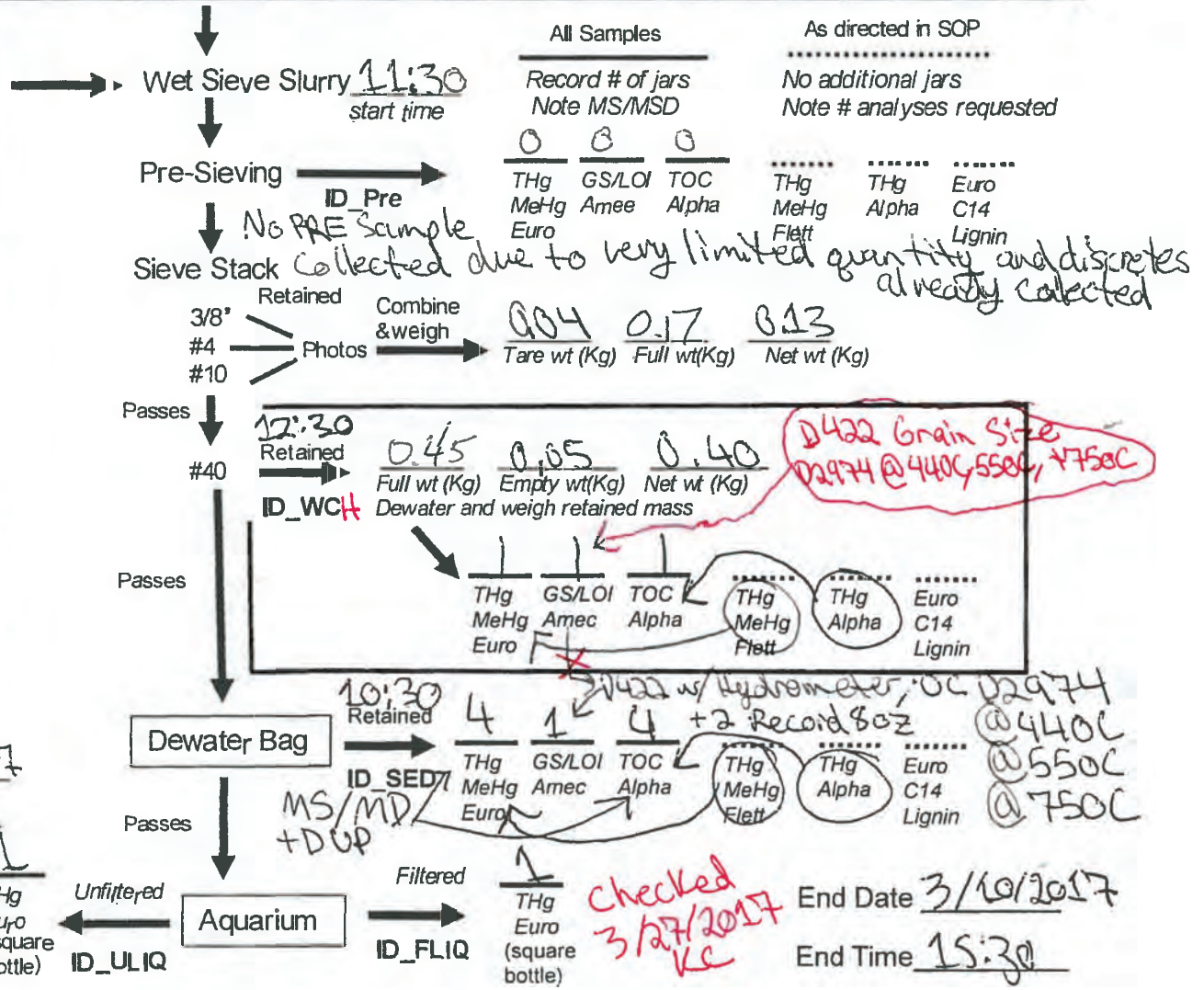
River Water 40/00  
 field salinity  
 Batch 6 collected 3/7/2017  
 pH, conductivity  
 salinity (Alpha) 1730

Slurry Source  
4.18 0.413 3.75  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)

Full wt (Kg) Empty wt(Kg) Net wt (Kg)

Full wt (Kg) Empty wt(Kg) Net wt (Kg)

Full wt (Kg) Empty wt(Kg) Net wt (Kg)



Dewater Date 3/9/2017 Start 13:30 End 3/10/2017  
 Dewater Time 13:30 14:30

mass of water collected in aquaria

Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)
<u>13.02</u>	<u>0.06</u>	<u>12.96</u>
<u>6.06</u>		
<u>6.06</u>		
<u>12.02</u>		

Caution Acid

MeHg Euro (round bottle)

THg Euro (square bottle)



Composite Lab  
 Sample ID (ID) OR-TRAP 1+2  
 (e.g., "CJ01THRU22")

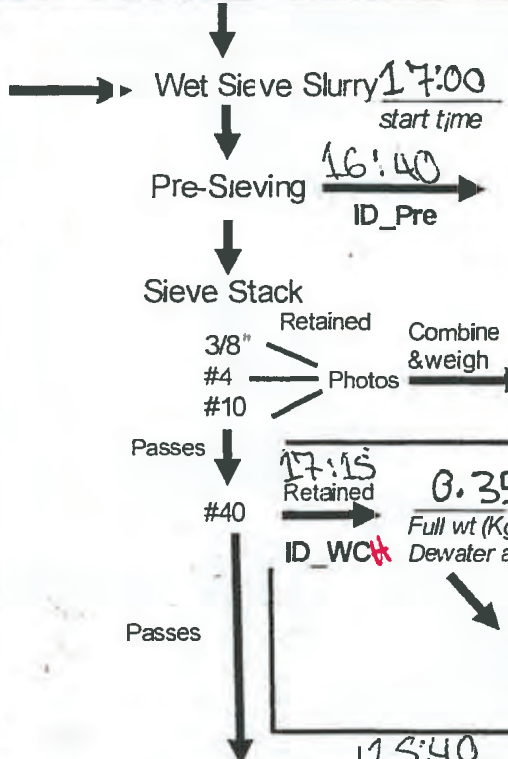
Date 3/9/2017 Start time 1615

Prepared by DY, KC, MM  
 initials of field lead and assists

Composite ~~OR-TRAP 1, OR TRAP 2~~ DY Amec 48, 52 trap, Amec 48 OR 52  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ -2, CJ-03, -1 gal. each."

River Water 6‰  
 Batch 7 field salinity collected 3/8/2017  
 pH, conductivity salinity (Alpha) 1815

Slurry Source  
2.08 0.41 1.67  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)



All Samples  
 Record # of jars Note MS/MSD  
1 1 1  
 THg GS/LOI TOC  
 MeHg Amec Alpha  
 Euro D422  
0C D2974 TBD

As directed in SOP  
 No additional jars  
 Note # analyses requested

THg THg Euro  
 MeHg Alpha C14  
 Flett Lignin

Sieve Stack  
 3/8" Retained Combine & weigh  
 #4 Photos Tare wt (Kg) Full wt(Kg) Net wt (Kg)  
0.06 0.30 0.26  
 #10

Passes #40 Retained  
0.35 0.05 0.30  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 ID\_WC\* Dewater and weigh retained mass  
 THg GS/LOI TOG THg THg Euro  
 MeHg Amec Alpha MeHg Alpha C14  
 Euro D422 0C D2974 TBD Flett Lignin

Passes Dewater Bag Retained  
1 1 1  
 THg GS/LOI TOC THg THg Euro  
 MeHg Amec Alpha MeHg Alpha C14  
 Euro D422 0C D2974 TBD Flett Lignin

Dewater Date 3/9/2017 | 3/10/2017  
 Dewater Time 18:45 | 15:30

mass of water collected in aquaria  
16.48 0.12 16.36  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
8.88  
 +7.60  
 Caution Acid

Unfiltered ID\_ULIQ  
 MeHg Euro (round bottle)  
 THg Euro (square bottle)

Aquarium  
 Filtered ID\_FLIQ  
 THg Euro (square bottle)

Checked  
3/27/2017  
KC

End Date 3/10/17  
 End Time 1550

Composite Lab.  
 Sample ID (ID) VE-TRAP2+3  
 (e.g., "CJ01THRU22")

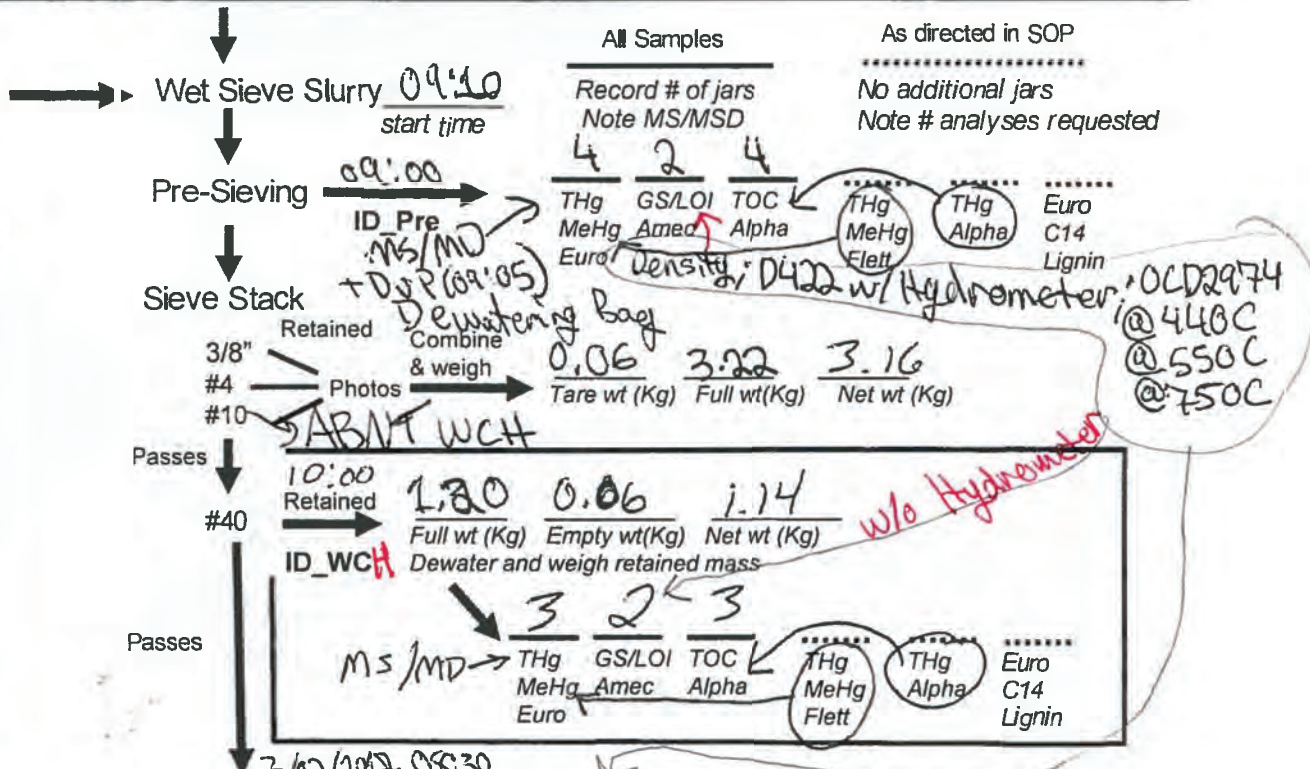
Date 0815 <sup>01</sup>  
3/11/2017 Start time 0815

Prepared by DY, KC, MM  
 initials of field lead and assists

Composite NETRAP 2, NETRAP 3  
 Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ-2, CJ-03, ~1 gal. each."

River Water 10%  
 Batch 8 field salinity collected  
 3/11/2017  
 pH, conductivity  
 salinity (Alpha) 0815  
0900

Slurry Source  
5.00 0.16 5.14  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Netwt(Kg)



Dewater Date 3/11/2017 Start 08:00 End 08:30  
 Dewater Time

mass of water collected in aquaria  
10.86 0.06 10.80 10.74  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
4.80  
76.06  
10.86  
 Caution Acid (round bottle)

Checked  
3/27/2017  
 KC

End Date 3/12/2017  
 End Time 09:00



Composite Lab

Sample ID (ID) VE58THRU60  
(e.g., "CJ01THRU22")

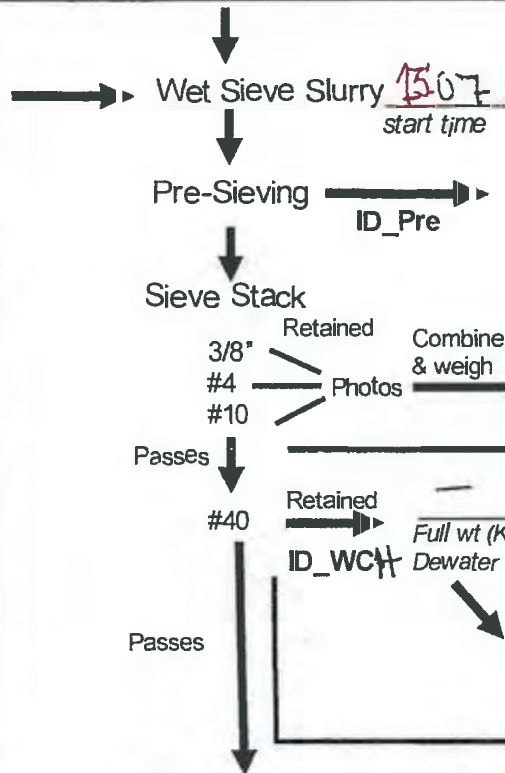
Date 3/7/2017 Start time 11:00AM

Prepared by LC, MM, DY  
initials of field lead and assists

Composite VE58, VE59, VE60, VE61  
Gravel  
Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ-2, CJ-03, ~1 gal. each."

River Water 4‰  
field salinity  
pH, conductivity  
salinity (Alpha) —  
BATCH 5 collected 03/06/17  
1545

Slurry Source (Just Sedi in Bucket)  
2.80 0.42 2.38  
Full wt (Kg) Empty wt(Kg) Net wt(Kg)  
— — —  
Full wt (Kg) Empty wt(Kg) Netwt(Kg)  
— — —  
Full wt (Kg) Empty wt(Kg) Netwt(Kg)



All Samples  
Record # of jars  
Note MS/MSL >  
1 2 1  
THg GS/LOI TOC  
MeHg Amec Alpha  
Euro 0

As directed in SOP  
No additional jars  
Note # analyses requested  
THg THg Euro  
MeHg Alpha C14  
Flett Lignin

Retained 3/8" #4 #10 Photos Combine & weigh  
Tare wt (Kg) Full wt(Kg) Net wt (Kg)  
0.06 0.14 0.08

Retained #40 ID\_WCH  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
Dewater and weigh retain of mass  
1 2 1  
THg GS/LOI TOG THg THg Euro  
MeHg Amec Alpha MeHg Alpha C14  
Euro Density Flett Lignin

D422 Grain Size  
D854 Density  
D2974 @ @ 440C, 550C, +750C

Start End  
Dewater Date 3/7/2017 3/8/17  
Dewater Time 13:30 0945

Retained ID\_SED  
THg GS/LOI TOC  
MeHg Amec Alpha  
Euro

mass of water collected in aquaria  
11.73 0.12 11.61  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
5.80 +5.93  
MeHg THg  
Euro Euro  
(round bottle) (square bottle)  
Caution Acid MS/MD

Unfiltered ID\_ULIQ  
Checked 3/27/2017  
Aquarium  
Filtered ID\_FLIQ  
THg Euro (square bottle)  
3  
D422 with hydrometer  
D2974 @ 440C @ 550C @ 750C  
D854 Density  
End Date 03/09/2017  
End Time 1630



Composite Lab

Sample ID (ID) VE505253\_SIEVE  
(e.g., "CJ01THRU22")

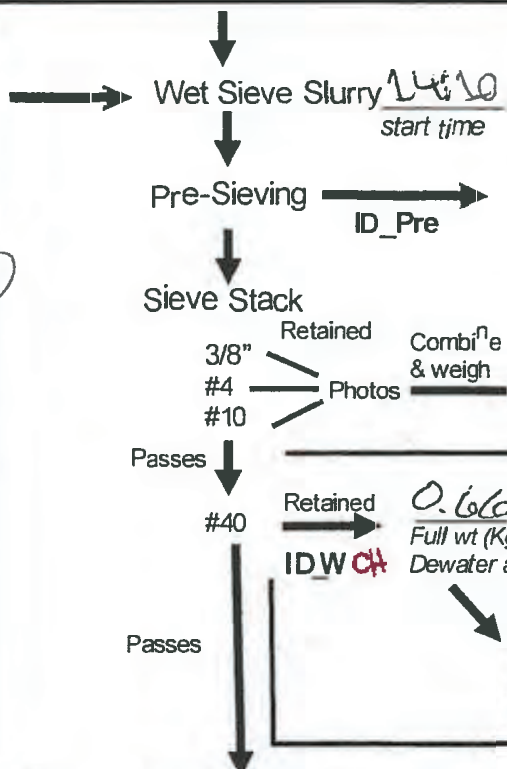
Date 3/7/17 Start time 1400

Prepared by KC, MM, DY  
initials of field lead and assists

Composite VE50, VE52, VE53  
Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ -2, CJ-03, ~1 gal. each."

River Water 4%  
Batch 5 field salinity collected 03/06/2017  
pH, conductivity 1545  
salinity (Alpha) —

Slurry Source (Just seal in bucket)  
2.16 0.43 1.73  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)



All Samples  
Record # of jars  
Note MS/MSD  
1 — 1  
THg GS/LOI TOG  
MeHg Amec Alpha  
Euro  
As directed in SOP  
No additional jars  
Note # analyses requested  
THg THg Euro  
MeHg Alpha C14  
Flett Lignin

Sieve Stack  
Retained 3/8" #4 #10  
Combi^n e & weigh Photos  
0.04 0.40 0.36  
Tare wt (Kg) Full wt(Kg) Net wt (Kg)  
  
Passes #40  
Retained 0.66 0.08 0.60  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
IDW CH  
Dewater and weigh retained mass  
THg GS/LOI TOC  
MeHg Amec Alpha  
Euro 0.422 0.2974 @ TBD  
THg THg Euro  
MeHg Alpha C14  
Flett Lignin

Start End  
Dewater Date 3/7/2017 3/8/2017  
Dewater Time 14:45 17:30

Dewater Bag  
Retained 1 2 1  
ID\_SED  
THg GS/LOI TOG  
MeHg Amec Alpha  
Euro 0.422 0.2974 @ TBD  
THg THg Euro  
MeHg Alpha C14  
Flett Lignin

mass of water collected in aquaria  
12.60 0.12 12.48  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
6.20  
+6.40  
12.60  
Caution Acid  
MeHg THg  
Euro Euro  
(round square  
bottle) bottle)  
Unfiltered  
ID\_ULIQ

Aquarium  
Filtered  
ID\_FLIQ  
0  
THg  
Euro  
(square bottle)  
Checked 3/27/2017 KE  
End Date 3/8/2017  
End Time 1800

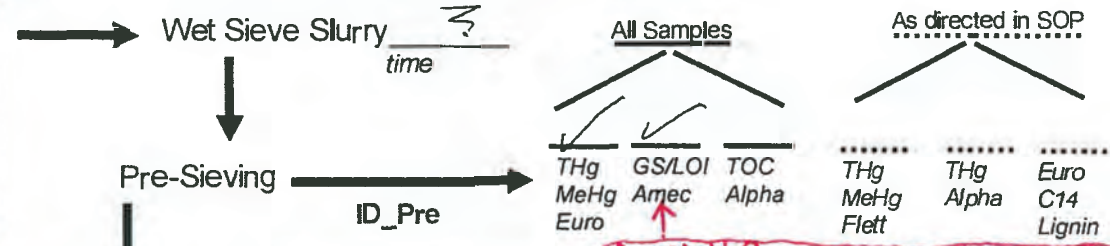
Composite Lab  
 Sample ID (ID) VNSITHR58  
 (e.g., "CJ01THRU22")

Date 2/8/17 Start time ~ 14<sup>00</sup>

Prepared by CP/KPA/nm/KC  
 initials of field lead and assists

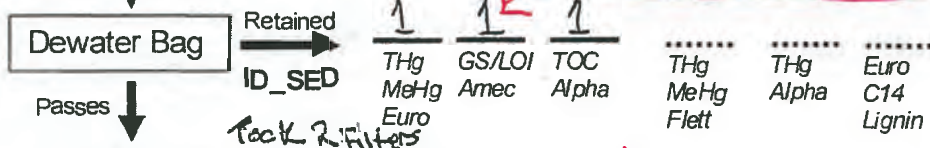
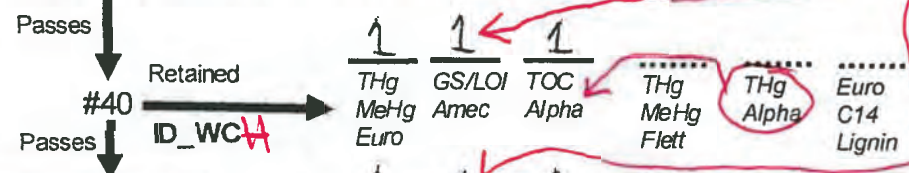
Disc 51 Disc 52 Disc 53 Disc 54 Disc 55 Disc 56 Disc 57 Disc 58 Disc \_\_\_\_\_ Disc \_\_\_\_\_  
 Disc \_\_\_\_\_ Disc \_\_\_\_\_ Disc \_\_\_\_\_ Disc \_\_\_\_\_ Disc \_\_\_\_\_ Disc \_\_\_\_\_ Disc \_\_\_\_\_ Disc \_\_\_\_\_ Disc \_\_\_\_\_  
 Disc \_\_\_\_\_ Disc \_\_\_\_\_  
 Enter the station number, e.g. 01, 02, etc

River Water 6.0  
 field salinity  
 pH, conductivity  
 salinity (alpha) \_\_\_\_\_



Slurry Source  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_  
 Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
 \_\_\_\_\_

Sieve Stack  
 Retained 3/8# #4 #10  
 Photos  
 Combine & weigh  
 Tarewt(Kg) Full wt(Kg) Net wt (Kg)



Caution Acid →  
 1 MeHg Euro (round bottle) H<sub>2</sub>SO<sub>4</sub>  
 1 THg Euro (square bottle)



Checked 2/27/2017 KC  
 End Date 2/8/17  
 End time 17:00

D422 w/ Hydrom  
 D2974 @ TBD  
 440C, 550C  
 + 750C

note - this data sheet completed retroactively on 2/9/17



Composite Lab

Sample ID (ID) VN67THRU73  
(e.g., "CJ01THRU22")

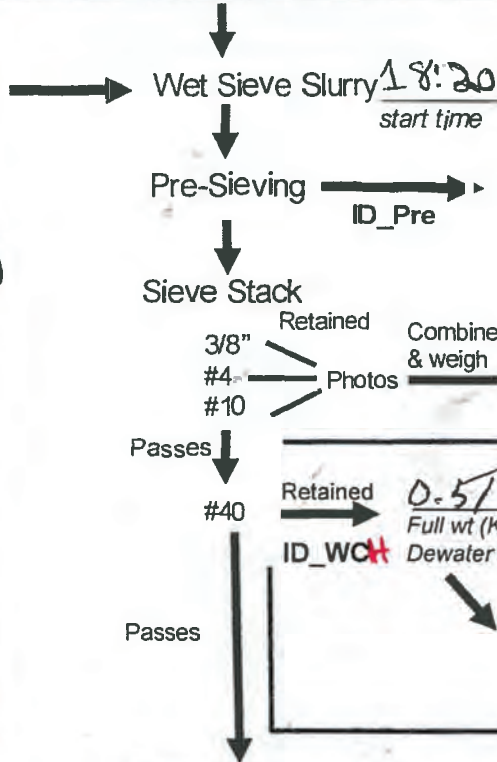
Date 3/7/2017 Start time 15:30

Prepared by KE, MM, PY  
initials of field lead and assists

Composite VN67, VN68, VN69, VN69, VN70, VN71, VN72, VN73  
Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ-2, CJ-03, ~1 gal. each."

River Water 4%  
field salinity  
Batch 5 Collected  
pH, conductivity  
salinity (Alpha) 1545  
3/06/2017

Slurry Source (Just Sed in bucket)  
7.89 3.01 4.88  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
  
Full wt (Kg) Empty wt(Kg) Net wt(Kg)



All Samples			As directed in SOP		
Record # of jars Note MS/MSD			No additional jars Note # analyses requested		
1	3	1	THg	THg	Euro
MeHg	GS/LOI	TOC	MeHg	THg	C14
Euro	Amec	Alpha	Flett	Alpha	Lignin
D422 w/ Hydrom (1-40%) D854 Density			D422 w/ Hydrom (1-80%)		
D2974 @ 440c, 550c, 750c (1-40%)					
0.06	0.09	0.83			
Tare wt (Kg)	Full wt(Kg)	Net wt (Kg)			

Retained			Dewater and weigh retained mass		
0.57	0.06	0.45	THg	THg	Euro
Full wt (Kg)	Empty wt(Kg)	Net wt (Kg)	MeHg	Alpha	C14
			Euro	Flett	Lignin
1	1	1			
THg	GS/LOI	TOC			
MeHg	Amec	Alpha			
Euro	OC				

D422 Grain Size  
D854 Density  
D2974 @ 440c, 550c + 750c

Dewater Date 3/7/17 | 3/8/17  
Dewater Time 09:10

mass of water collected in aquaria  
13.81 0.12 13.69  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
8.71  
+ 5.10  
Caution Acid  
Dup  
MeHg Euro (round bottle)  
THg Euro (square bottle)

Retained			Filtered		
1	1	1	THg	THg	Euro
ID_SED	MeHg	GS/LOI	Euro	Alpha	C14
			Euro	Flett	Lignin
			D422 w/ Hydrom (1-40%)		
			D2974 @ 440c		
			@ 550c		
			@ 750c		
			D854 Density		
			Dup		

End Date 3/8/2017  
End Time 16:00

Checklist  
3/27/2017  
KE



Composite Lab

Sample ID (ID) VN74THRUS80  
(e.g., "CJ01THRU22")

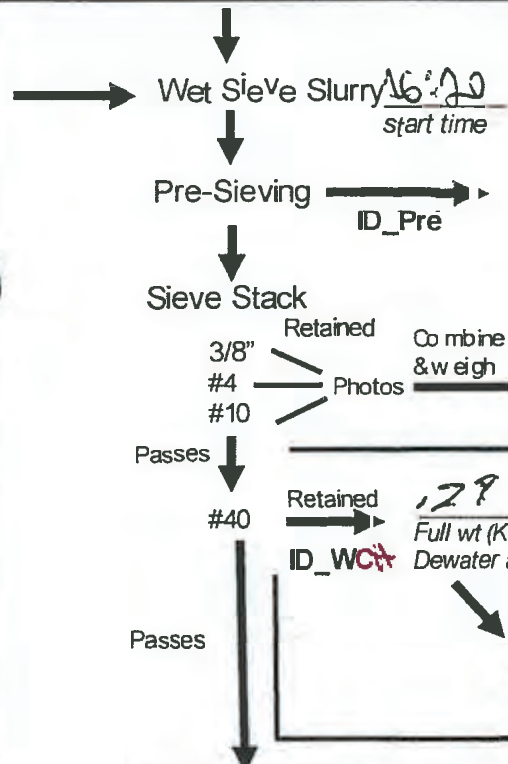
Date 3/7/2017 Start time 15:15

Prepared by VC, MM, DV  
initials of field lead and assists

Composite VN74, VN75, VN76, VN77, VN78, VN80  
Enter the station number, of discrete samples going into composite, and approximate volumes e.g. "CJ- 01, CJ-2, CJ-03, ~1 gal. each."

River Water 40 field salinity  
Batch 5 Collected 05/06/2017  
pH, conductivity salinity (Alpha) 1545

Slurry Source (Just Sed. in bucket)  
4.31 0.40 3.91  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)



All Samples			As directed in SOP		
Record # of jars Note MS/MSD			No additional jars Note # analyses requested		
1	2	1	THg	THg	Euro
MeHg	GS/LOI	TOC	MeHg	THg	C14
Euro	Amec	Alpha	Flett	Alpha	Lignin
<i>D432 w/ Hydrometer D2974 @ TBD</i>					
0.06	0.14	0.08			
Tare wt (Kg) Full wt(Kg) Net wt (Kg)					
Retained <u>0.28</u> <u>0.07</u> <u>0.22</u> mm					
Full wt (Kg) Empty wt(Kg) Net wt (Kg)					
Dewater and weigh retained mass					
1	1	1	THg	THg	Euro
MeHg	GS/LOI	TOC	MeHg	THg	C14
Euro	Amec	Alpha	Flett	Alpha	Lignin
<i>D432 w/ Hydrometer D2974 @ TBD</i>					

Dewater Date 3/7/17 | 3/8/17  
Dewater Time 1630 | 0830

Dewater Bag Retained 1 2 1  
ID\_SED THg GS/LOI TOC  
MeHg Amec Alpha  
Euro *D2974 @ TBD*

mass of water collected in aquaria  
12.42 0.06 12.30  
Full wt (Kg) Empty wt(Kg) Net wt (Kg)  
  
5.91  
6.51  
Caution Acid (round bottle)

Aquarium Unfiltered ID\_ULIQ Filtered ID\_FLIQ  
THg Euro (square bottle)  
THg Euro (square bottle)  
*D432 w/ Hydrometer  
D2974 @ TBD*  
End Date 3/8/2017  
End Time 1700  
*Checked 3/27/2017 KC*

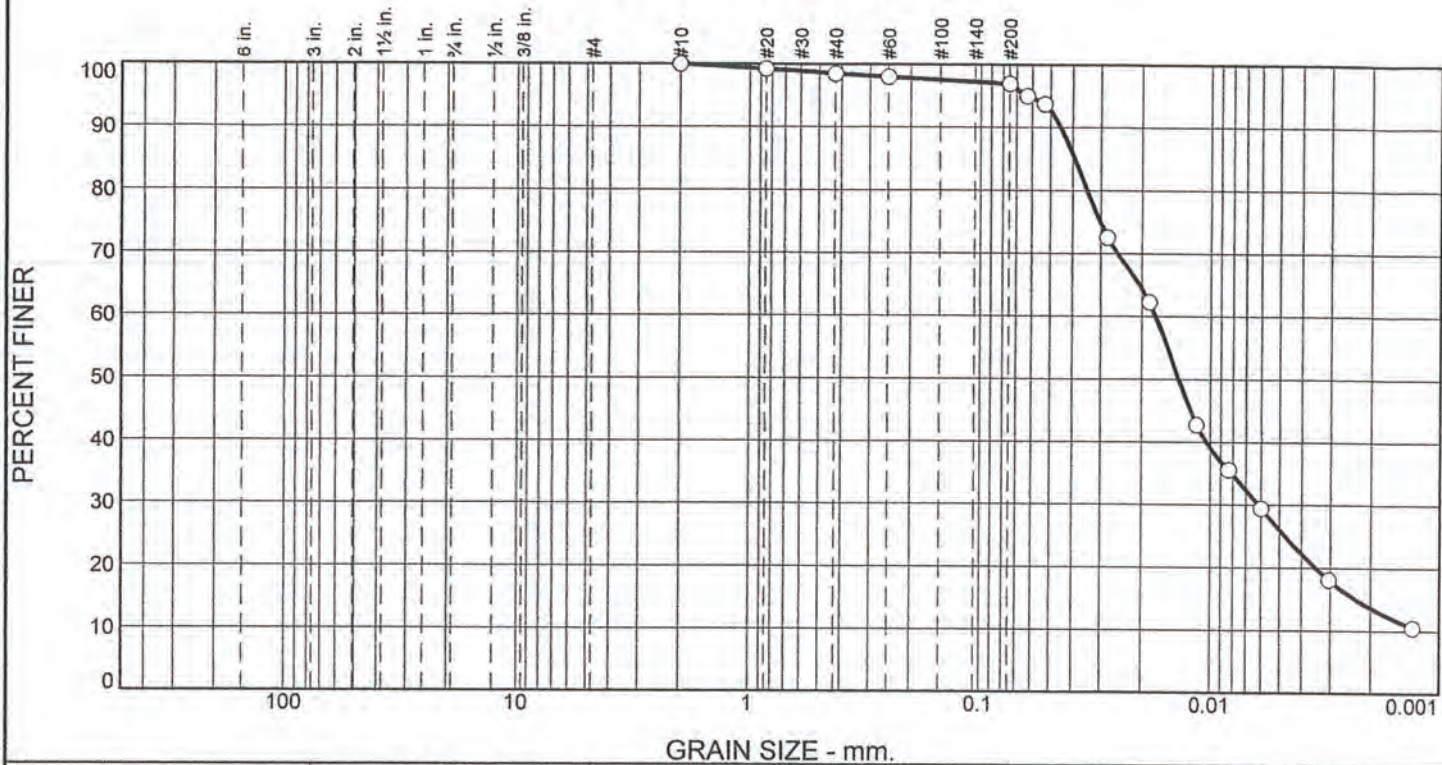
## **APPENDIX E SEDIMENT LABORATORY DATA SHEETS**

## **APPENDIX E1**

### **Work Order 3: Data Sheets**



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.5	1.5	83.4	13.6

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#10	100.0		
#20	99.2		
#40	98.5		
#60	98.0		
#200	97.0		
#230	95.0		
#270	93.7		
0.0281 mm.	72.6		
0.0185 mm.	62.3		
0.0115 mm.	42.8		
0.0083 mm.	35.6		
0.0060 mm.	29.4		
0.0030 mm.	18.1		
0.0013 mm.	10.5		

\* (no specification provided)

**Material Description**

Greenish Sandy SILT

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 0.0450      D<sub>85</sub>= 0.0391      D<sub>60</sub>= 0.0174  
D<sub>50</sub>= 0.0138      D<sub>30</sub>= 0.0062      D<sub>15</sub>= 0.0023  
D<sub>10</sub>=                  C<sub>u</sub>=                  C<sub>c</sub>=

**Remarks**

ND = Not determined    vis = visual  
Specific Gravity is assumed  
Organic Content = 16.6%

---

**Date Received:** 6/16/16      **Date Tested:** 6/17/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** HA1-060916SED-G  
**Sample Number:** NA

**Depth:** NA

**Date Sampled:** 6/9/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



## GRAIN SIZE DISTRIBUTION TEST DATA

7/12/2016

Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Project Number: 3616166052.04.03  
 Location: HA1-060916SED-G

Depth: NA

Sample Number: NA

Material Description: Greenish Sandy SILT

Sample Date: 6/9/16

Date Received: 6/16/16      PL: ND

LL: ND

PI: ND

USCS Classification: ML (vis)

AASHTO Classification: ND

Grain Size Test Method: ASTM D 422-63(07)E2014

Testing Remarks: ND = Not determined    vis = visual

Specific Gravity is assumed

Organic Content = 16.6%

Tested By: CS

Test Date: 6/17/16

Checked By: LBJ

Title: Lab Manager

### Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
85.71	0.00	0.00	#10	0.00	100.0
48.20	0.00	0.00	#20	0.38	99.2
			#40	0.73	98.5
			#60	0.96	98.0
			#200	1.47	97.0
			#230	2.41	95.0
			#270	3.02	93.7

### Hydrometer Test Data

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 97.0

Weight of hydrometer sample = 48.20

Hygroscopic moisture correction:

Moist weight and tare = 19.62

Dry weight and tare = 19.35

Tare weight = 11.24

Hygroscopic moisture = 3.3%

Table of composite correction values:

Temp., deg. C:            11.1            29.1

Comp. corr.:              -9.5            -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	42.0	35.3	0.0131	43.0	9.2	0.0281	72.6
5.00	22.3	37.0	30.3	0.0131	38.0	10.1	0.0185	62.3
15.00	22.3	27.5	20.8	0.0131	28.5	11.6	0.0115	42.8
30.00	22.3	24.0	17.3	0.0131	25.0	12.2	0.0083	35.6
60.00	22.4	21.0	14.3	0.0131	22.0	12.7	0.0060	29.4
250.00	22.3	15.5	8.8	0.0131	16.5	13.6	0.0030	18.1
1440.00	21.5	12.0	5.1	0.0132	13.0	14.2	0.0013	10.5

**Fractional Components**

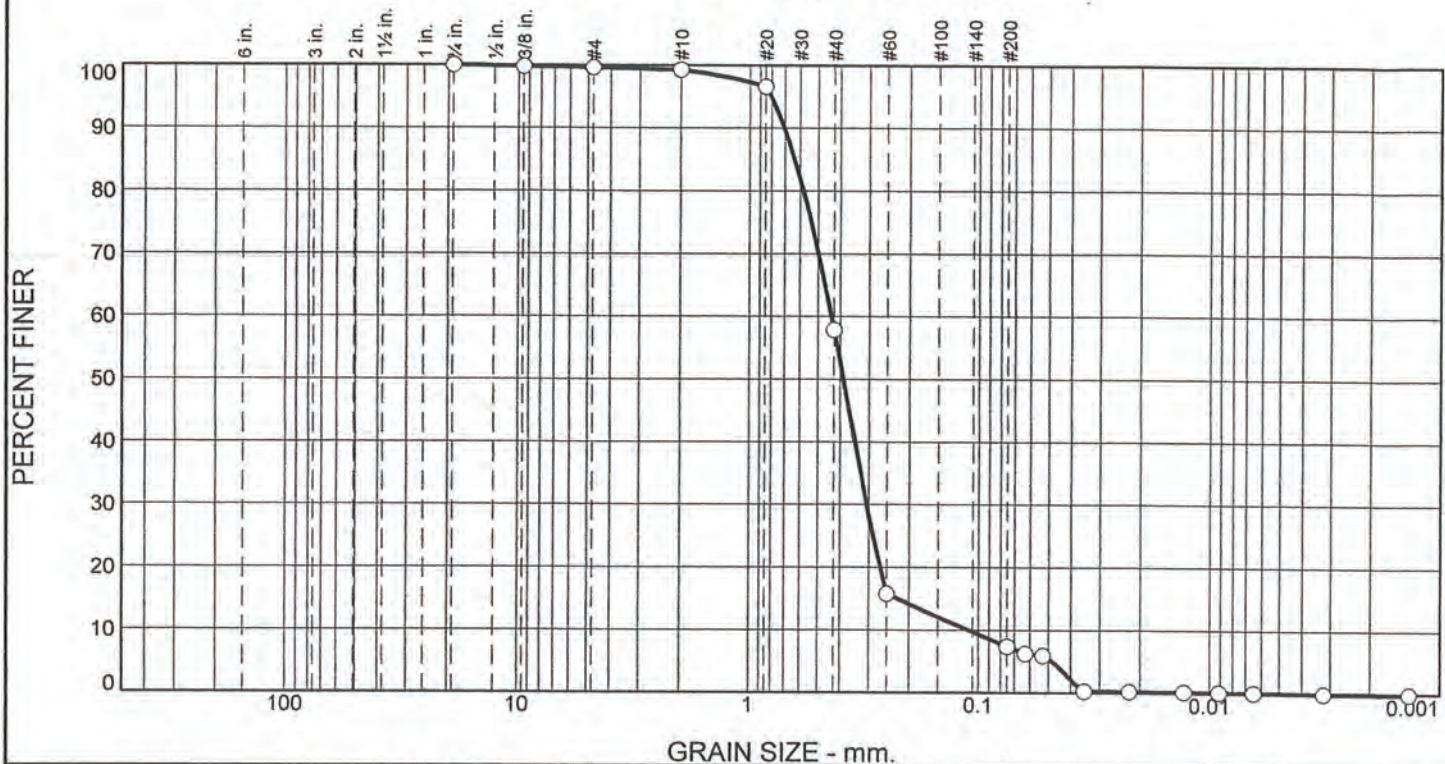
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.5	1.5	3.0	83.4	13.6	97.0

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
		0.0023	0.0035	0.0062	0.0104	0.0138	0.0174	0.0345	0.0391	0.0450	0.0630

<b>Fineness Modulus</b>
0.06



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.3	41.4	50.5	7.4	

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	99.8		
#4	99.6		
#10	99.3		
#20	96.6		
#40	57.9		
#60	15.8		
#200	7.4		
#230	6.3		
#270	5.9		
0.0351 mm.	0.3		
0.0223 mm.	0.2		
0.0129 mm.	0.2		
0.0091 mm.	0.1		
0.0065 mm.	0.1		
0.0032 mm.	0.1		
0.0014 mm.	0.1		

\* (no specification provided)

**Material Description**

Olive Green SAND

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= SP (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 0.7046	D <sub>85</sub> = 0.6348	D <sub>60</sub> = 0.4364
D <sub>50</sub> = 0.3872	D <sub>30</sub> = 0.3063	D <sub>15</sub> = 0.2256
D <sub>10</sub> = 0.1110	C <sub>u</sub> = 3.93	C <sub>c</sub> = 1.94

**Remarks**

ND = Not Determined    vis = visual  
 Specific Gravity is assumed  
 Organic Content = 6.5%

---

**Date Received:** 6/16/16                      **Date Tested:** 6/17/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/27/2016

Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Project Number: 3616166052.04.03  
 Location: HA3-060916-SED-G  
 Depth: NA  
 Material Description: Olive Green SAND  
 Sample Date: 6/9/16  
 Date Received: 6/16/16      PL: ND  
 USCS Classification: SP (vis)  
 Grain Size Test Method: ASTM D 422-63(07)E2014  
 Testing Remarks: ND = Not Determined    vis = visual

Sample Number: NA  
 LL: ND      PI: ND  
 AASHTO Classification: ND

Specific Gravity is assumed  
 Organic Content = 6.5%

Tested By: CS      Test Date: 6/17/16  
 Checked By: LBJ      Title: Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
303.43	0.00	0.00	3/4	0.00	100.0
			.375	0.60	99.8
			#4	1.12	99.6
			#10	2.20	99.3
102.46	0.00	0.00	#20	2.74	96.6
			#40	42.74	57.9
			#60	86.20	15.8
			#200	94.83	7.4
			#230	95.99	6.3
			#270	96.35	5.9

**Hydrometer Test Data**

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 7.4  
 Weight of hydrometer sample = 102.46

Hygroscopic moisture correction:  
 Moist weight and tare = 25.99  
 Dry weight and tare = 25.92  
 Tare weight = 11.18  
 Hygroscopic moisture = 0.5%

Table of composite correction values:  
 Temp., deg. C:      11.1      29.1  
 Comp. corr.:      -9.5      -5.0

Meniscus correction only = 1.0  
 Specific gravity of solids = 2.700  
 Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	11.0	4.3	0.0131	12.0	14.3	0.0351	0.3
5.00	22.1	10.0	3.3	0.0131	11.0	14.5	0.0223	0.2
15.00	22.1	9.0	2.3	0.0131	10.0	14.7	0.0129	0.2
30.00	22.4	8.5	1.8	0.0131	9.5	14.7	0.0091	0.1
60.00	22.4	8.0	1.3	0.0131	9.0	14.8	0.0065	0.1
250.00	22.2	6.5	-0.2	0.0131	7.5	15.1	0.0032	0.0

**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
1440.00	21.1	6.0	-1.0	0.0133	7.0	15.1	0.0014	-0.1

**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.3	41.4	50.5	92.2			7.4

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0481	0.1110	0.2256	0.2678	0.3063	0.3450	0.3872	0.4364	0.5805	0.6348	0.7046	0.8043

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
1.81	3.93	1.94







**GRAIN SIZE DISTRIBUTION TEST DATA**

7/27/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** FF1H-060616-SED-G

**Depth:** NA

**Sample Number:** NA

**Material Description:** Olive Green SAND with Bark

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** SP

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not Determined vis = visual

Specific gravity is assumed

Organic Contents = 16.8%(15.7% of sample weight was BARK)

**Tested By:** CS

**Test Date:** 6/17/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
167.00	0.00	0.00	3/4	0.00	100.0
			.375	15.25	90.9
			#4	29.47	82.4
			#10	40.91	75.5
83.03	0.00	0.00	#20	25.56	52.3
			#40	68.28	13.4
			#60	77.40	5.1
			#200	78.90	3.8
			#230	79.80	2.9
			#270	79.95	2.8

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 3.8

Weight of hydrometer sample = 83.03

Hygroscopic moisture correction:

Moist weight and tare = 29.97

Dry weight and tare = 29.95

Tare weight = 15.64

Hygroscopic moisture = 0.1%

Table of composite correction values:

Temp., deg. C: 11.1                      29.1

Comp. corr.: -9.5                          -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	7.5	0.7	0.0131	8.5	14.9	0.0358	0.0
5.00	21.9	7.0	0.2	0.0131	8.0	15.0	0.0227	0.0
15.00	21.9	7.0	0.2	0.0131	8.0	15.0	0.0131	0.0
30.00	21.9	7.0	0.2	0.0131	8.0	15.0	0.0093	0.0
60.00	21.9	7.0	0.2	0.0131	8.0	15.0	0.0066	0.0
250.00	21.8	6.5	-0.3	0.0131	7.5	15.1	0.0032	0.0

**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
1440.00	21.0	6.0	-1.0	0.0133	7.0	15.1	0.0014	0.0

**Fractional Components**

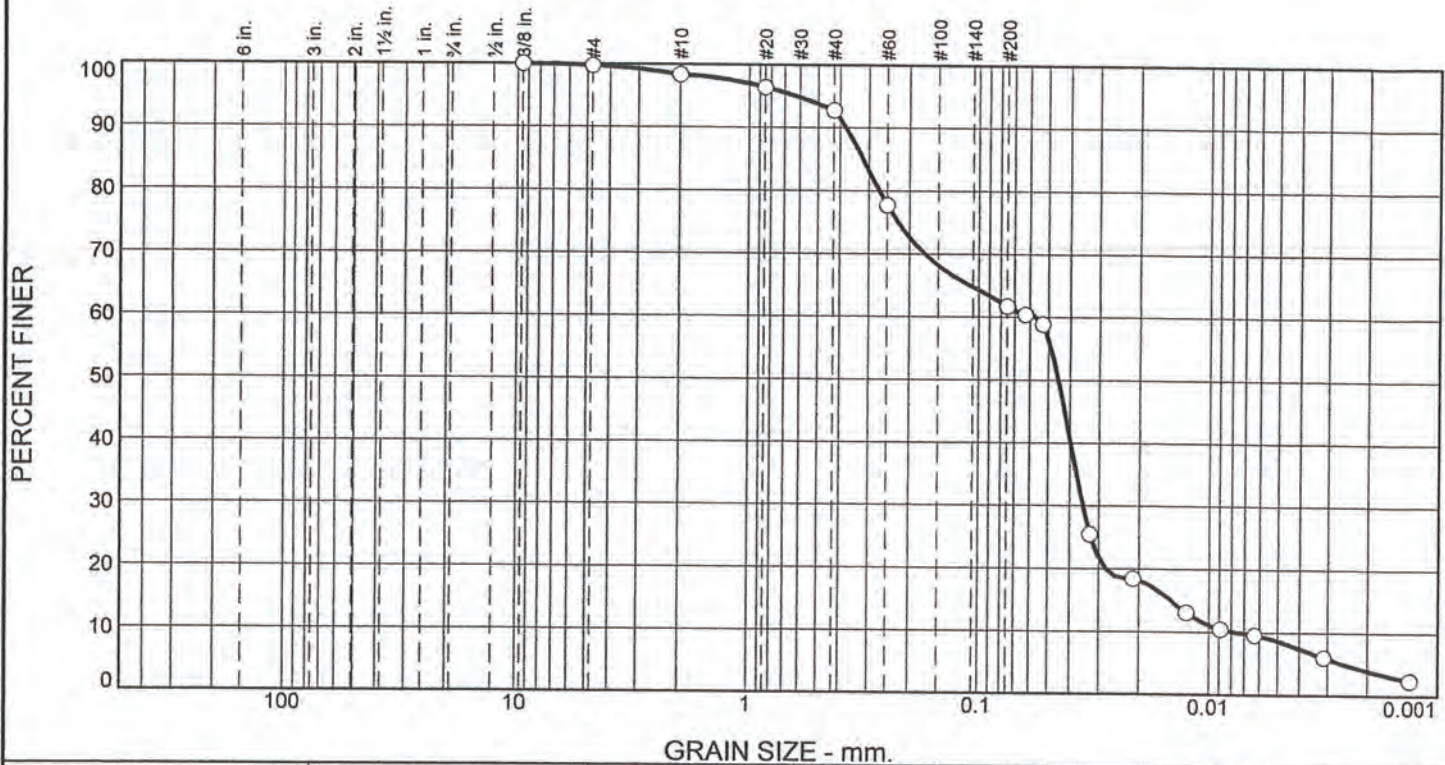
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	17.6	17.6	6.9	62.1	9.6	78.6			3.8

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.2250	0.3816	0.4422	0.4915	0.5855	0.6878	0.8147	1.0074	3.5090	6.0809	8.9324	12.9925

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
3.42	2.64	0.89



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.5	5.5	31.1	57.8	3.9

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	99.8		
#10	98.3		
#20	96.4		
#40	92.8		
#60	77.7		
#200	61.7		
#230	60.4		
#270	58.9		
0.0328 mm.	25.5		
0.0212 mm.	18.4		
0.0125 mm.	13.1		
0.0089 mm.	10.5		
0.0063 mm.	9.6		
0.0031 mm.	6.0		
0.0013 mm.	2.4		

\* (no specification provided)

**Material Description**

Grayish Brown Silty SAND with Organic materials

**Atterberg Limits (ASTM D 4318)**

PL= 37      LL= 46      PI= 9

**Classification**

USCS (D 2487)= ML      AASHTO (M 145)= A-5(6)

**Coefficients**

D<sub>90</sub>= 0.3773      D<sub>85</sub>= 0.3181      D<sub>60</sub>= 0.0562  
 D<sub>50</sub>= 0.0451      D<sub>30</sub>= 0.0351      D<sub>15</sub>= 0.0146  
 D<sub>10</sub>= 0.0077      C<sub>u</sub>= 7.29      C<sub>c</sub>= 2.85

**Remarks**

Specific Gravity is assumed  
Organic Content = 9.8%

---

**Date Received:** 6/16/16      **Date Tested:** 7/14/16  
**Tested By:** CS  
**Checked By:** LBJ  
**Title:** Lab Manager

**Source of Sample:** FF2H-060616-SED-G  
**Sample Number:** NA

**Depth:** Bulk

**Date Sampled:** 6/10/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** FF2H-060616-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Grayish Brown Silty SAND with Organic materials

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** 37

**LL:** 46

**PI:** 9

**USCS Classification:** ML

**AASHTO Classification:** A-5(6)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** Specific Gravity is assumed  
Organic Content = 9.8%

**Tested By:** CS

**Test Date:** 7/14/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
140.39	0.00	0.00	.375	0.00	100.0
			#4	0.33	99.8
			#10	2.32	98.3
35.78	0.00	0.00	#20	0.70	96.4
			#40	2.02	92.8
			#60	7.50	77.7
			#200	13.32	61.7
			#230	13.82	60.4
			#270	14.35	58.9

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 61.7

Weight of hydrometer sample = 35.78

Hygroscopic moisture correction:

Moist weight and tare = 22.48

Dry weight and tare = 22.22

Tare weight = 15.43

Hygroscopic moisture = 3.8%

Table of composite correction values:

Temp., deg. C: 11.1                      29.1

Comp. corr.: -9.5                          -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.7	21.0	14.4	0.0130	22.0	12.7	0.0328	25.5
5.00	22.7	17.0	10.4	0.0130	18.0	13.3	0.0212	18.4
15.00	22.7	14.0	7.4	0.0130	15.0	13.8	0.0125	13.1
30.00	22.7	12.5	5.9	0.0130	13.5	14.1	0.0089	10.5
60.00	22.7	12.0	5.4	0.0130	13.0	14.2	0.0063	9.6
250.00	22.7	10.0	3.4	0.0130	11.0	14.5	0.0031	6.0
1440.00	22.5	8.0	1.3	0.0130	9.0	14.8	0.0013	2.4

**Fractional Components**

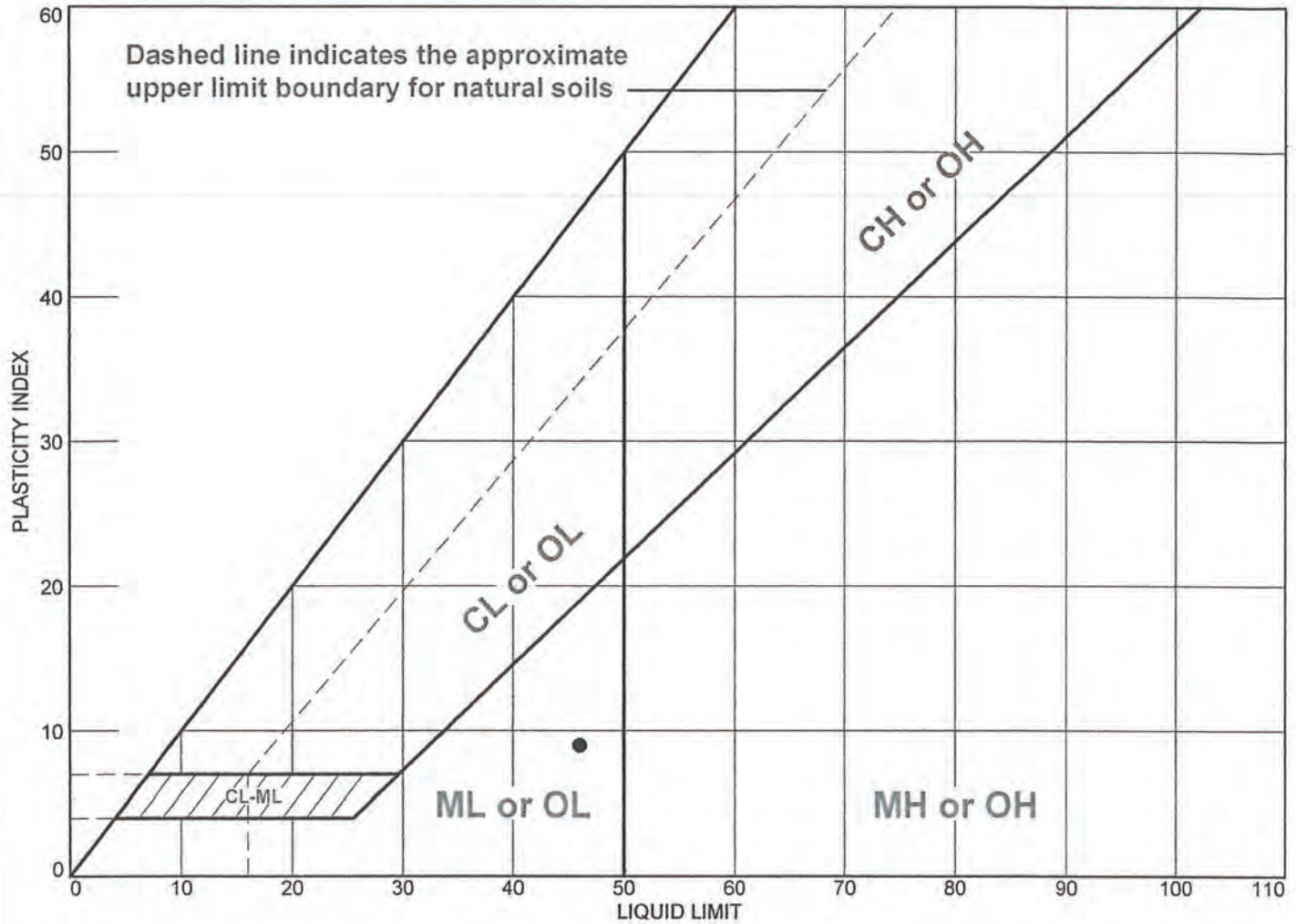
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	1.5	5.5	31.1	38.1	57.8	3.9	61.7

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0026	0.0077	0.0146	0.0280	0.0351	0.0398	0.0451	0.0562	0.2706	0.3181	0.3773	0.6198

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.58	7.29	2.85



# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318



Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
○ Grayish Brown Silty SAND with Organic materials	6/10/16	7/14/16	CS	46	37	9	92.8	ML

**Project No.** 3616166052.04 **Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
 ○ **Source of Sample:** FF2H-060616-SED-G      **Depth:** Bulk      **Sample Number:** NA



**Checked by:** LBJ  
**Title:** Lab Manager  
**Figure**

**Tested By:** CS

**Checked By:** LBJ

## LIQUID AND PLASTIC LIMIT TEST DATA

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** FF2H-060616-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Grayish Brown Silty SAND with Organic materials

**Sample Date:** 6/10/16

**%<#40:** 92.8

**USCS:** ML

**AASHTO:** A-5(6)

**Tested by:** CS

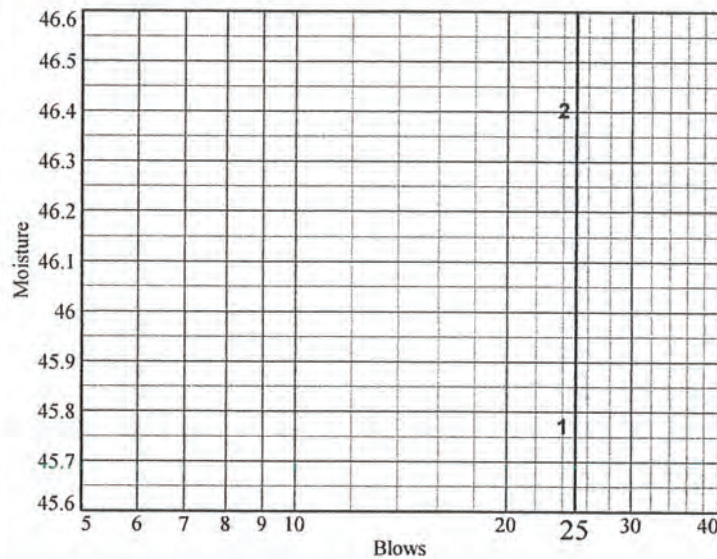
**Test Date:** 7/14/16

**Checked by:** LBJ

**Title:** Lab Manager

### Liquid Limit Data

Run No.	1	2	3	4	5	6
<b>Wet+Tare</b>	31.38	22.25				
<b>Dry+Tare</b>	26.4	19.54				
<b>Tare</b>	15.52	13.70				
<b># Blows</b>	24	24				
<b>Moisture</b>	45.8	46.4				



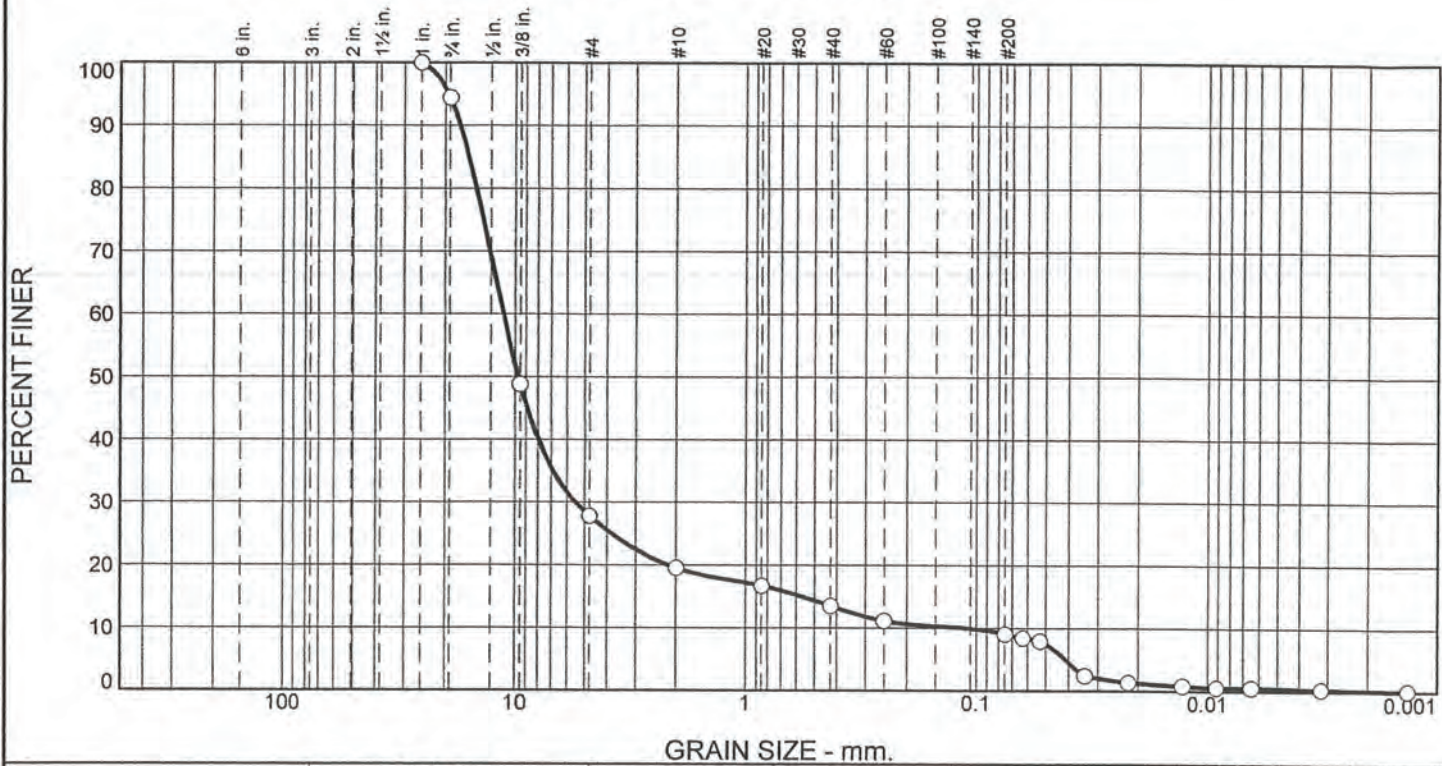
**Liquid Limit=** 46  
**Plastic Limit=** 37  
**Plasticity Index=** 9  
**Natural Moisture=** ND

### Plastic Limit Data

Run No.	1	2	3	4
<b>Wet+Tare</b>	23.65	27.63		
<b>Dry+Tare</b>	20.84	22.01		
<b>Tare</b>	13.36	6.89		
<b>Moisture</b>	37.6	37.2		



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.5	66.7	8.3	6.0	4.5	8.8	0.2

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1	100.0		
3/4	94.5		
.375	48.8		
#4	27.8		
#10	19.5		
#20	16.7		
#40	13.5		
#60	11.1		
#200	9.0		
#230	8.4		
#270	8.0		
0.0341 mm.	2.4		
0.0221 mm.	1.4		
0.0129 mm.	0.9		
0.0092 mm.	0.6		
0.0065 mm.	0.6		
0.0032 mm.	0.3		
0.0013 mm.	0.1		

\* (no specification provided)

**Material Description**

Olive Green Silty Gravelly SAND

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= SM (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 17.2636              D<sub>85</sub>= 15.8530              D<sub>60</sub>= 11.2479  
D<sub>50</sub>= 9.7162                D<sub>30</sub>= 5.4845                D<sub>15</sub>= 0.5703  
D<sub>10</sub>= 0.1102                C<sub>u</sub>= 102.11                C<sub>c</sub>= 24.28

**Remarks**

ND = Not Determined    vis = visual  
Gravels retain on #3/4 through #10 Sieves  
Organic Content = 1.4%

---

**Date Received:** 6/16/16              **Date Tested:** 7/1/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** FF3H-060616-SED-G  
**Sample Number:** NA

**Depth:** Jar

**Date Sampled:** 6/06/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/13/2016

**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Project Number:** 3616166052.04.03  
**Location:** FF3H-060616-SED-G

**Depth:** Jar **Sample Number:** NA

**Material Description:** Olive Green Silty Gravelly SAND

**Sample Date:** 6/06/16

**Date Received:** 6/16/16 **PL:** ND **LL:** ND **PI:** ND

**USCS Classification:** SM (vis) **AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not Determined vis = visual  
 Gravels retain on #3/4 through #10 Sieves  
 Organic Content = 1.4%

**Tested By:** CS **Test Date:** 7/1/16  
**Checked By:** LBJ **Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
341.62	0.00	0.00	1	0.00	100.0
			3/4	18.88	94.5
			.375	174.92	48.8
			#4	246.55	27.8
			#10	274.99	19.5
34.23	0.00	0.00	#20	4.90	16.7
			#40	10.56	13.5
			#60	14.71	11.1
			#200	18.35	9.0
			#230	19.47	8.4
			#270	20.27	8.0

**Hydrometer Test Data**

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 9.0  
 Weight of hydrometer sample = 34.23  
 Hygroscopic moisture correction:  
 Moist weight and tare = 20.62  
 Dry weight and tare = 20.46  
 Tare weight = 11.10  
 Hygroscopic moisture = 1.7%  
 Table of composite correction values:  
 Temp., deg. C: 11.1 29.1  
 Comp. corr.: -9.5 -5.0  
 Meniscus correction only = 1.0  
 Specific gravity of solids = 2.700  
 Hydrometer type = 152H  
 Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	16.0	9.2	0.0131	17.0	13.5	0.0341	2.4
5.00	21.9	12.0	5.2	0.0131	13.0	14.2	0.0221	1.4
15.00	21.9	10.0	3.2	0.0131	11.0	14.5	0.0129	0.9
30.00	21.9	9.0	2.2	0.0131	10.0	14.7	0.0092	0.6
60.00	21.9	9.0	2.2	0.0131	10.0	14.7	0.0065	0.6

**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	21.7	8.0	1.1	0.0132	9.0	14.8	0.0032	0.3
1440.00	21.1	7.5	0.5	0.0133	8.5	14.9	0.0013	0.1

**Fractional Components**

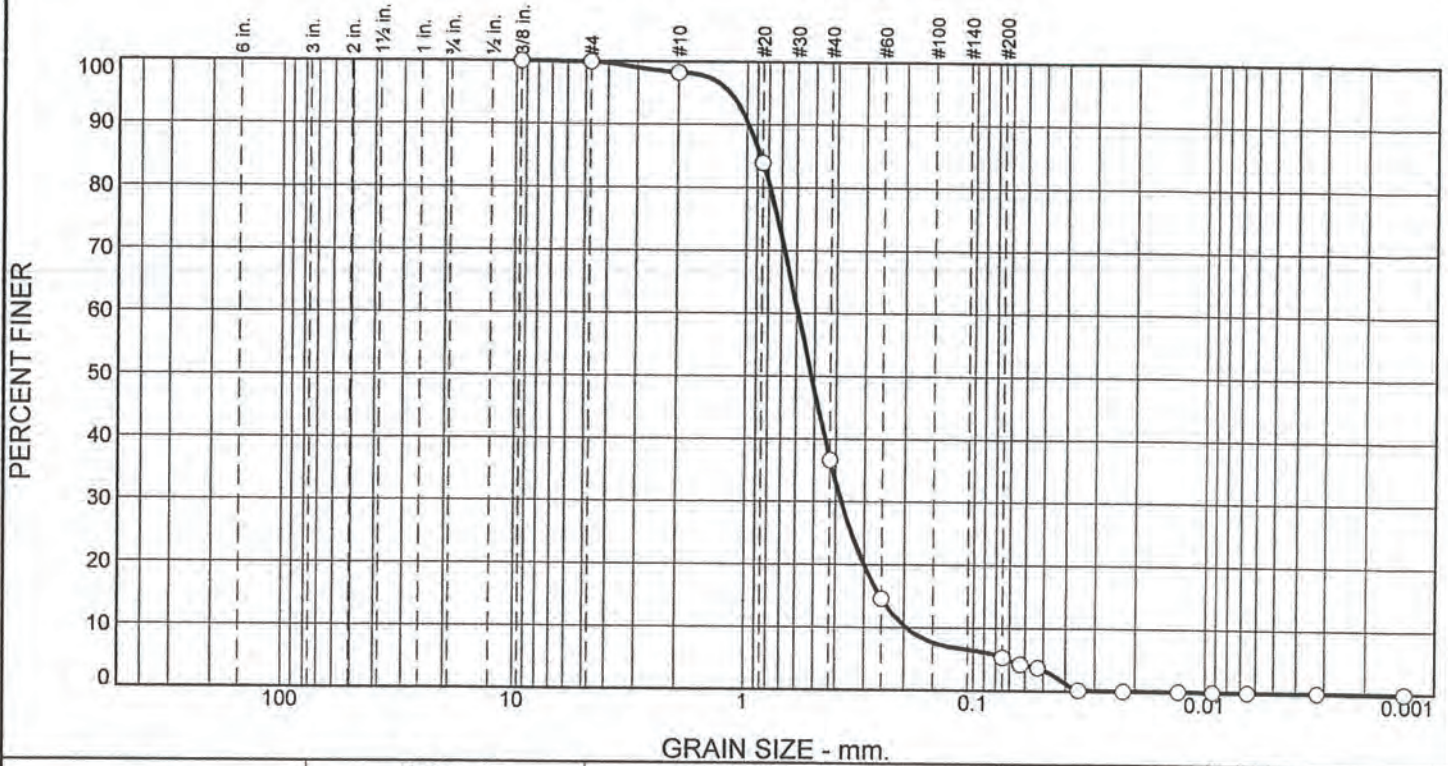
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	5.5	66.7	72.2	8.3	6.0	4.5	18.8	8.8	0.2	9.0

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0414	0.1102	0.5703	2.1795	5.4845	7.9716	9.7162	11.2479	14.7149	15.8530	17.2636	19.3334

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
5.53	102.11	24.28



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.7	61.6	31.4	5.3	

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	98.3		
#20	84.0		
#40	36.7		
#60	14.6		
#200	5.3		
#230	4.2		
#270	3.8		
0.0353 mm.	0.2		
0.0225 mm.	0.1		
0.0131 mm.	0.1		
0.0093 mm.	0.0		
0.0065 mm.	0.0		
0.0032 mm.	0.0		
0.0014 mm.	0.0		

\* (no specification provided)

**Material Description**

Olive Brown SAND

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= SP (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 0.9804	D <sub>85</sub> = 0.8681	D <sub>60</sub> = 0.5905
D <sub>50</sub> = 0.5162	D <sub>30</sub> = 0.3780	D <sub>15</sub> = 0.2544
D <sub>10</sub> = 0.1952	C <sub>u</sub> = 3.02	C <sub>c</sub> = 1.24

**Remarks**

ND = Not determined    vis = visual  
 Specific Gravity is assumed  
 Organic Contents = .5%

---

Date Received: 6/16/16                      Date Tested: 7/1/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: FF5H-060616SED-G  
 Sample Number: NA

Depth: Jar

Date Sampled: 6/06/16



Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/13/2016

Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Project Number: 3616166052.04.03  
 Location: FF5H-060616SED-G  
 Depth: Jar  
 Material Description: Olive Brown SAND  
 Sample Date: 6/06/16  
 Date Received: 6/16/16      PL: ND  
 USCS Classification: SP (vis)  
 Grain Size Test Method: ASTM D 422-63(07)E2014

Sample Number: NA  
 LL: ND      PI: ND  
 AASHTO Classification: ND

Testing Remarks: ND = Not determined   vis = visual  
 Specific Gravity is assumed  
 Organic Contents = .5%

Tested By: CS      Test Date: 7/1/16  
 Checked By: LBJ      Title: Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
348.75	0.00	0.00	.375	0.00	100.0
			#4	0.13	100.0
			#10	6.04	98.3
97.42	0.00	0.00	#20	14.18	84.0
			#40	61.06	36.7
			#60	82.98	14.6
			#200	92.14	5.3
			#230	93.23	4.2
			#270	93.70	3.8

**Hydrometer Test Data**

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 5.3  
 Weight of hydrometer sample = 97.42  
 Hygroscopic moisture correction:  
 Moist weight and tare = 29.57  
 Dry weight and tare = 29.50  
 Tare weight = 15.46  
 Hygroscopic moisture = 0.5%  
 Table of composite correction values:  
 Temp., deg. C:      11.1      29.1  
 Comp. corr.:      -9.5      -5.0  
 Meniscus correction only = 1.0  
 Specific gravity of solids = 2.700  
 Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	10.0	3.2	0.0131	11.0	14.5	0.0353	0.2
5.00	21.9	8.5	1.7	0.0131	9.5	14.7	0.0225	0.1
15.00	21.9	8.0	1.2	0.0131	9.0	14.8	0.0131	0.1
30.00	21.9	7.5	0.7	0.0131	8.5	14.9	0.0093	0.0
60.00	22.1	7.5	0.8	0.0131	8.5	14.9	0.0065	0.0
250.00	21.6	7.0	0.1	0.0132	8.0	15.0	0.0032	0.0
1440.00	21.1	6.5	-0.5	0.0133	7.5	15.1	0.0014	0.0

**Fractional Components**

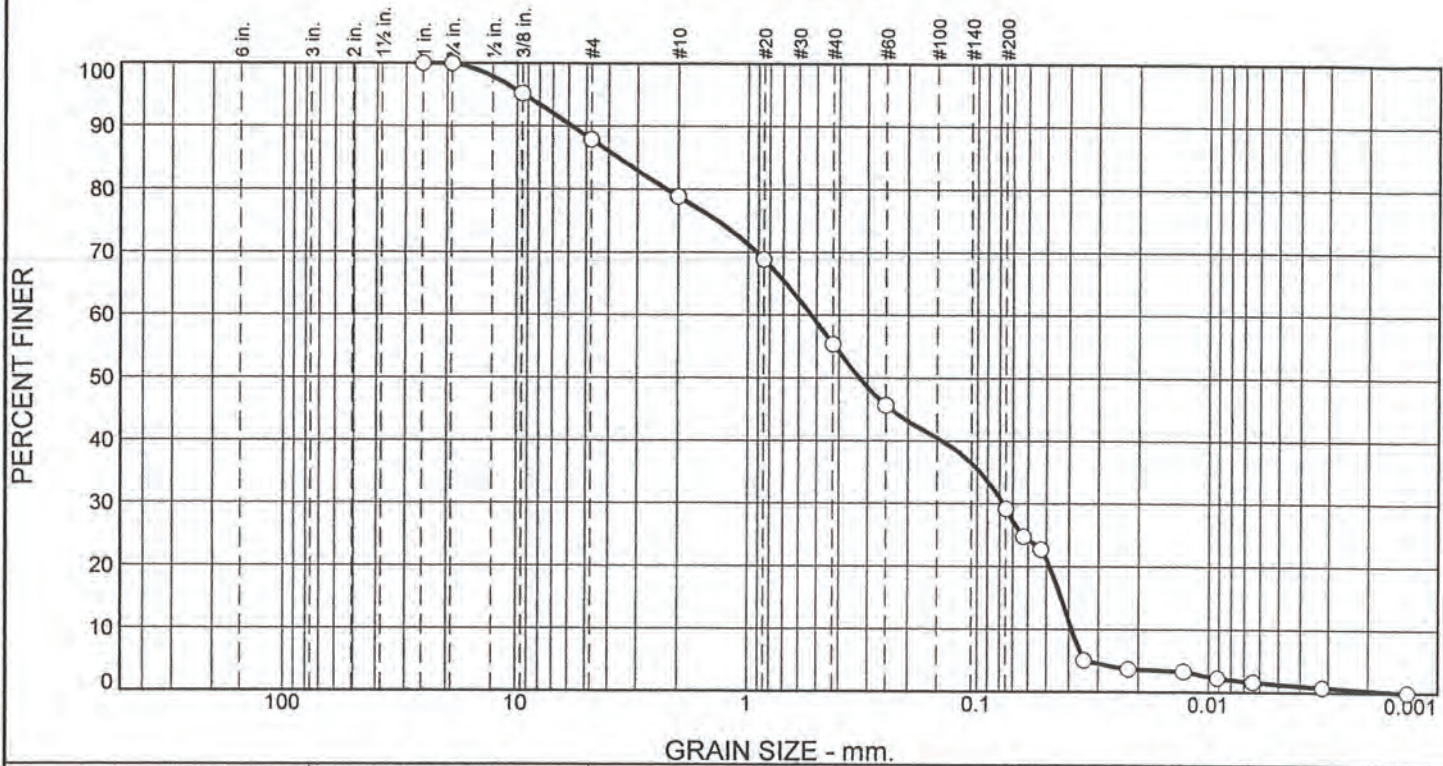
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	1.7	61.6	31.4	94.7			5.3

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0715	0.1952	0.2544	0.3002	0.3780	0.4476	0.5162	0.5905	0.7904	0.8681	0.9804	1.1888

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.18	3.02	1.24



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	12.1	9.1	23.4	26.2	28.8	0.4

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1	100.0		
3/4	100.0		
.375	95.2		
#4	87.9		
#10	78.8		
#20	68.9		
#40	55.4		
#60	45.7		
#200	29.2		
#230	24.8		
#270	22.7		
0.0345 mm.	5.1		
0.0221 mm.	3.7		
0.0128 mm.	3.3		
0.0091 mm.	2.3		
0.0065 mm.	1.6		
0.0032 mm.	0.8		
0.0014 mm.	0.0		

\* (no specification provided)

**Material Description**

Olive Green Silty Gravelly SAND

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= SM (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 5.7676      D<sub>85</sub>= 3.6268      D<sub>60</sub>= 0.5297  
D<sub>50</sub>= 0.3247      D<sub>30</sub>= 0.0772      D<sub>15</sub>= 0.0433  
D<sub>10</sub>= 0.0391      C<sub>u</sub>= 13.56      C<sub>c</sub>= 0.29

**Remarks**

ND = Not determined    vis = visual  
Gravels retain on Sieve (#3/8 thru #10)  
Organic Contents = 2.1%

---

Date Received: 6/16/16      Date Tested: 7/1/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: FF6H-060616-SED-G  
Sample Number: NA

Depth: Jar

Date Sampled: 6/10/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation  
Project No: 3616166052.04.03      Figure



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/13/2016

Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Project Number: 3616166052.04.03  
 Location: FF6H-060616-SED-G  
 Depth: Jar  
 Material Description: Olive Green Silty Gravelly SAND  
 Sample Date: 6/10/16  
 Date Received: 6/16/16      PL: ND  
 USCS Classification: SM (vis)  
 Grain Size Test Method: ASTM D 422-63(07)E2014  
 Testing Remarks: ND = Not determined    vis = visual

Sample Number: NA  
 LL: ND      PI: ND  
 AASHTO Classification: ND

Gravels retain on Sieve (#3/8 thru #10)  
 Organic Contents = 2.1%

Tested By: CS      Test Date: 7/1/16  
 Checked By: LBJ      Title: Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
239.88	0.00	0.00	1	0.00	100.0
			3/4	0.00	100.0
			.375	11.45	95.2
			#4	29.02	87.9
			#10	50.75	78.8
41.31	0.00	0.00	#20	5.22	68.9
			#40	12.28	55.4
			#60	17.38	45.7
			#200	26.01	29.2
			#230	28.33	24.8
			#270	29.40	22.7

**Hydrometer Test Data**

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 29.2  
 Weight of hydrometer sample = 41.31  
 Hygroscopic moisture correction:  
 Moist weight and tare = 28.55  
 Dry weight and tare = 28.41  
 Tare weight = 15.54  
 Hygroscopic moisture = 1.1%  
 Table of composite correction values:  
 Temp., deg. C:      11.1      29.1  
 Comp. corr.:      -9.5      -5.0  
 Meniscus correction only = 1.0  
 Specific gravity of solids = 2.700  
 Hydrometer type = 152H  
 Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	14.0	7.2	0.0131	15.0	13.8	0.0345	5.1
5.00	21.9	12.0	5.2	0.0131	13.0	14.2	0.0221	3.7
15.00	21.9	11.5	4.7	0.0131	12.5	14.2	0.0128	3.3
30.00	21.9	10.0	3.2	0.0131	11.0	14.5	0.0091	2.3
60.00	22.4	9.0	2.3	0.0131	10.0	14.7	0.0065	1.6

**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	21.7	8.0	1.1	0.0132	9.0	14.8	0.0032	0.8
1440.00	21.1	7.0	0.0	0.0133	8.0	15.0	0.0014	0.0

**Fractional Components**

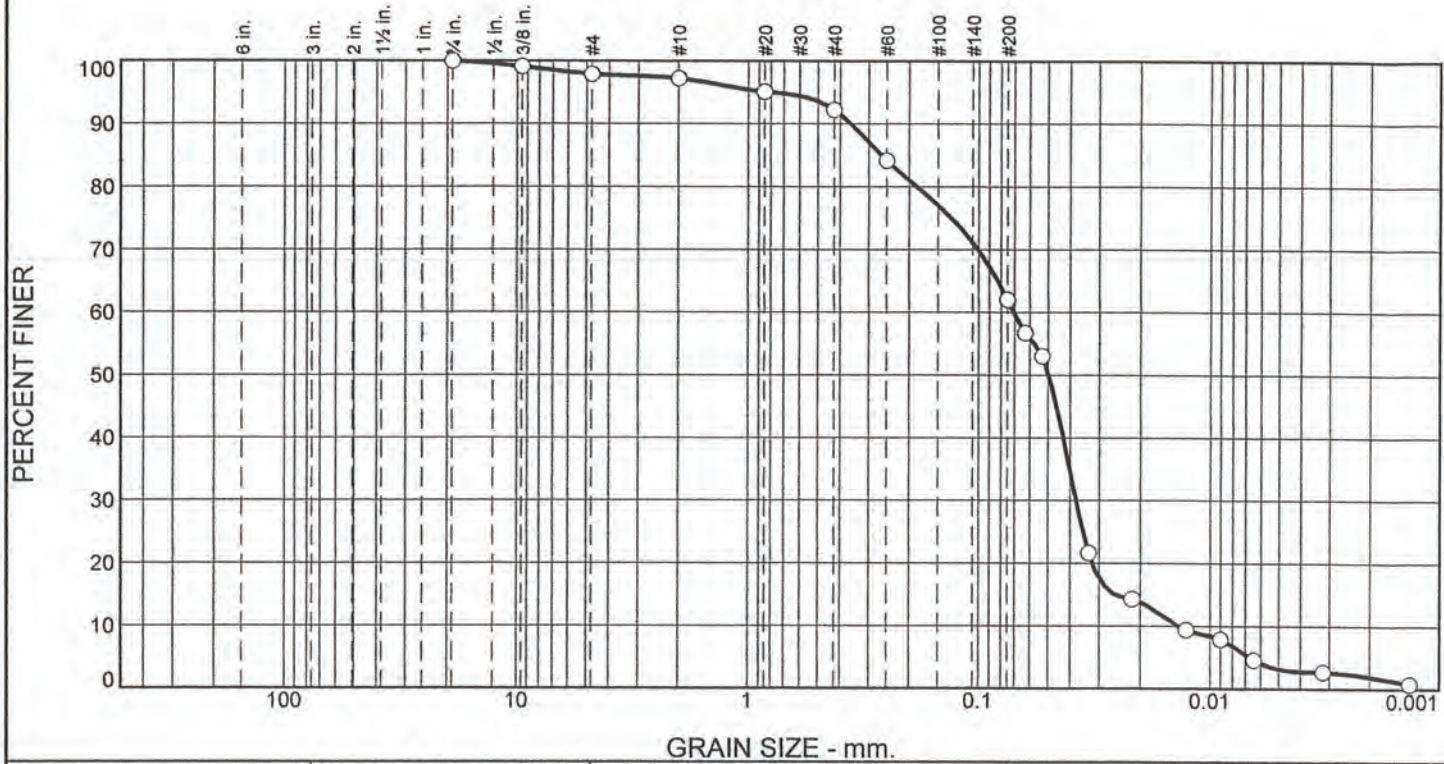
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	12.1	12.1	9.1	23.4	26.2	58.7	28.8	0.4	29.2

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0338	0.0391	0.0433	0.0484	0.0772	0.1428	0.3247	0.5297	2.2452	3.6268	5.7676	9.3095

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.11	13.56	0.29



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.1	0.7	5.0	30.2	60.1	1.9

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	99.1		
#4	97.9		
#10	95.1		
#20	92.2		
#40	84.2		
#60	62.0		
#200	56.7		
#230	53.0		
#270	21.6		
0.0332 mm.	14.3		
0.0216 mm.	9.4		
0.0127 mm.	7.9		
0.0090 mm.	4.6		
0.0064 mm.	2.7		
0.0032 mm.	0.8		
0.0013 mm.			

\* (no specification provided)

**Material Description**

Olive Green Sandy SILT with Gravel

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 0.3589      D<sub>85</sub>= 0.2634      D<sub>60</sub>= 0.0706  
D<sub>50</sub>= 0.0496      D<sub>30</sub>= 0.0378      D<sub>15</sub>= 0.0256  
D<sub>10</sub>= 0.0137      C<sub>u</sub>= 5.14      C<sub>c</sub>= 1.47

**Remarks**

ND = Not determined    vis = visual  
Organic Content = 3.8%  
Gravels retain on sieve (# 3/8,4,10)

Date Received: 6/10/16      Date Tested: 7/17/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: FF8F-060616-SED-G  
Sample Number: NA

Depth: Jar

Date Sampled: 6/06/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure





**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
1440.00	21.1	7.5	0.5	0.0133	8.5	14.9	0.0013	0.8

**Fractional Components**

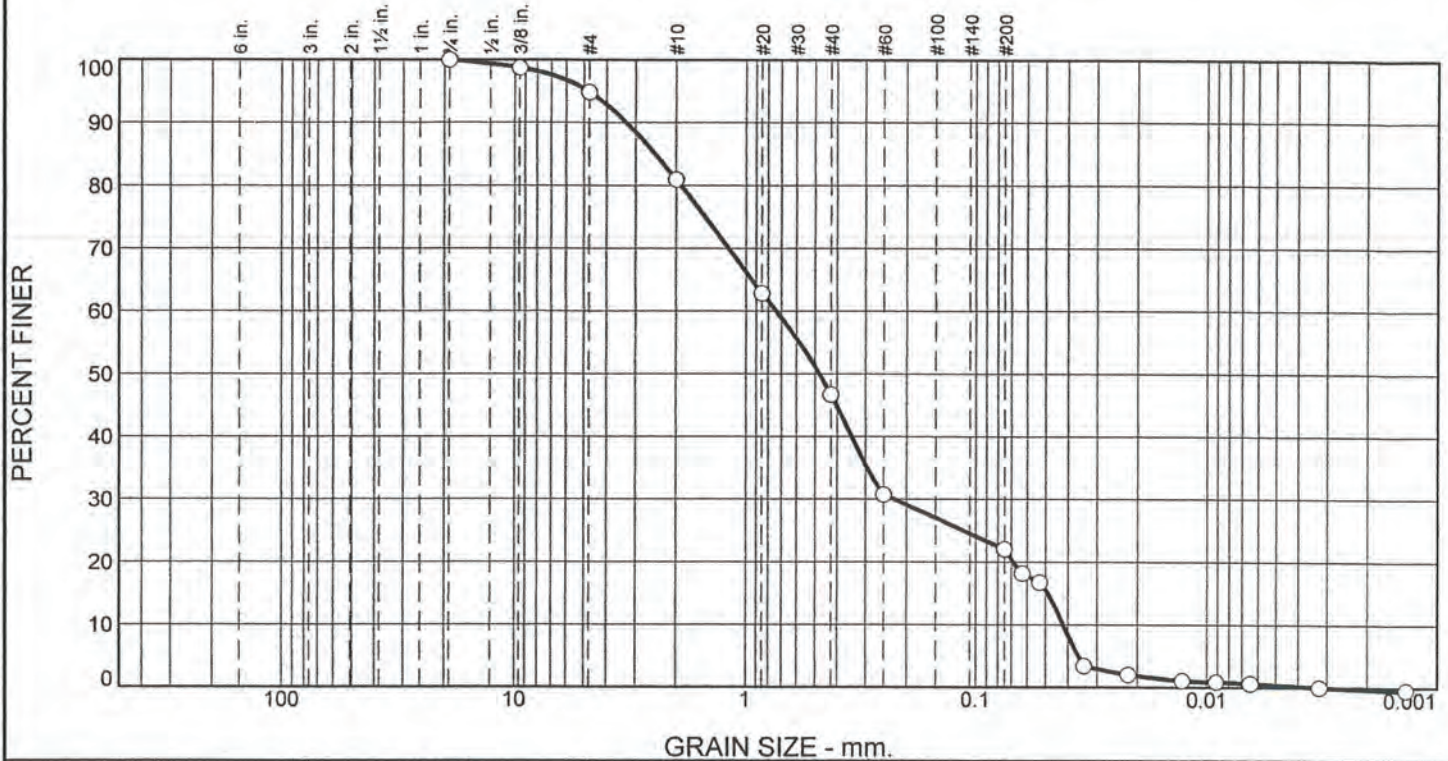
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.1	2.1	0.7	5.0	30.2	35.9	60.1	1.9	62.0

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0067	0.0137	0.0256	0.0321	0.0378	0.0429	0.0496	0.0706	0.1857	0.2634	0.3589	0.7935

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.51	5.14	1.47



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.1	13.9	34.3	24.7	22.0	

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	98.7		
#4	94.9		
#10	81.0		
#20	62.9		
#40	46.7		
#60	30.7		
#200	22.0		
#230	18.2		
#270	16.7		
0.0342 mm.	3.4		
0.0220 mm.	2.0		
0.0128 mm.	1.1		
0.0091 mm.	0.9		
0.0065 mm.	0.7		
0.0032 mm.	0.0		
0.0014 mm.			

\* (no specification provided)

**Material Description**

Brownish Green Silty SAND with Gravel

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= SM (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 3.2789	D <sub>85</sub> = 2.4594	D <sub>60</sub> = 0.7386
D <sub>50</sub> = 0.4771	D <sub>30</sub> = 0.2256	D <sub>15</sub> = 0.0488
D <sub>10</sub> = 0.0419	C <sub>u</sub> = 17.61	C <sub>c</sub> = 1.64

**Remarks**

ND = Not Determined    vis = visual  
Gravels retain on sieves #(3/8,4,10)  
Organic contents = 6.4%

---

**Date Received:** 6/16/16      **Date Tested:** 7/1/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** FF9F-060616-SED-G  
**Sample Number:** NA

**Depth:** Jar

**Date Sampled:** 6/06/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Project No:** 3616166052.04.03      **Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/13/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** FF9F-060616-SED-G

**Depth:** Jar

**Sample Number:** NA

**Material Description:** Brownish Green Silty SAND with Gravel

**Sample Date:** 6/06/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** SM (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not Determined vis = visual

Gravels retain on sieves #(3/8,4,10)

Organic contents = 6.4%

**Tested By:** CS

**Test Date:** 7/1/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
124.81	0.00	0.00	3/4	0.00	100.0
			.375	1.57	98.7
			#4	6.41	94.9
			#10	23.77	81.0
47.77	0.00	0.00	#20	10.67	62.9
			#40	20.22	46.7
			#60	29.63	30.7
			#200	34.77	22.0
			#230	37.03	18.2
			#270	37.90	16.7

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 22.0

Weight of hydrometer sample = 47.77

Hygroscopic moisture correction:

Moist weight and tare = 25.77

Dry weight and tare = 25.59

Tare weight = 11.12

Hygroscopic moisture = 1.2%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.8	14.0	7.4	0.0130	15.0	13.8	0.0342	3.4
5.00	22.8	11.0	4.4	0.0130	12.0	14.3	0.0220	2.0
15.00	22.8	9.0	2.4	0.0130	10.0	14.7	0.0128	1.1
30.00	22.8	8.5	1.9	0.0130	9.5	14.7	0.0091	0.9
60.00	22.8	8.0	1.4	0.0130	9.0	14.8	0.0065	0.7
250.00	21.4	7.0	0.1	0.0132	8.0	15.0	0.0032	0.0

**AMEC**

**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
1440.00	21.1	6.0	-1.0	0.0133	7.0	15.1	0.0014	-0.5

**Fractional Components**

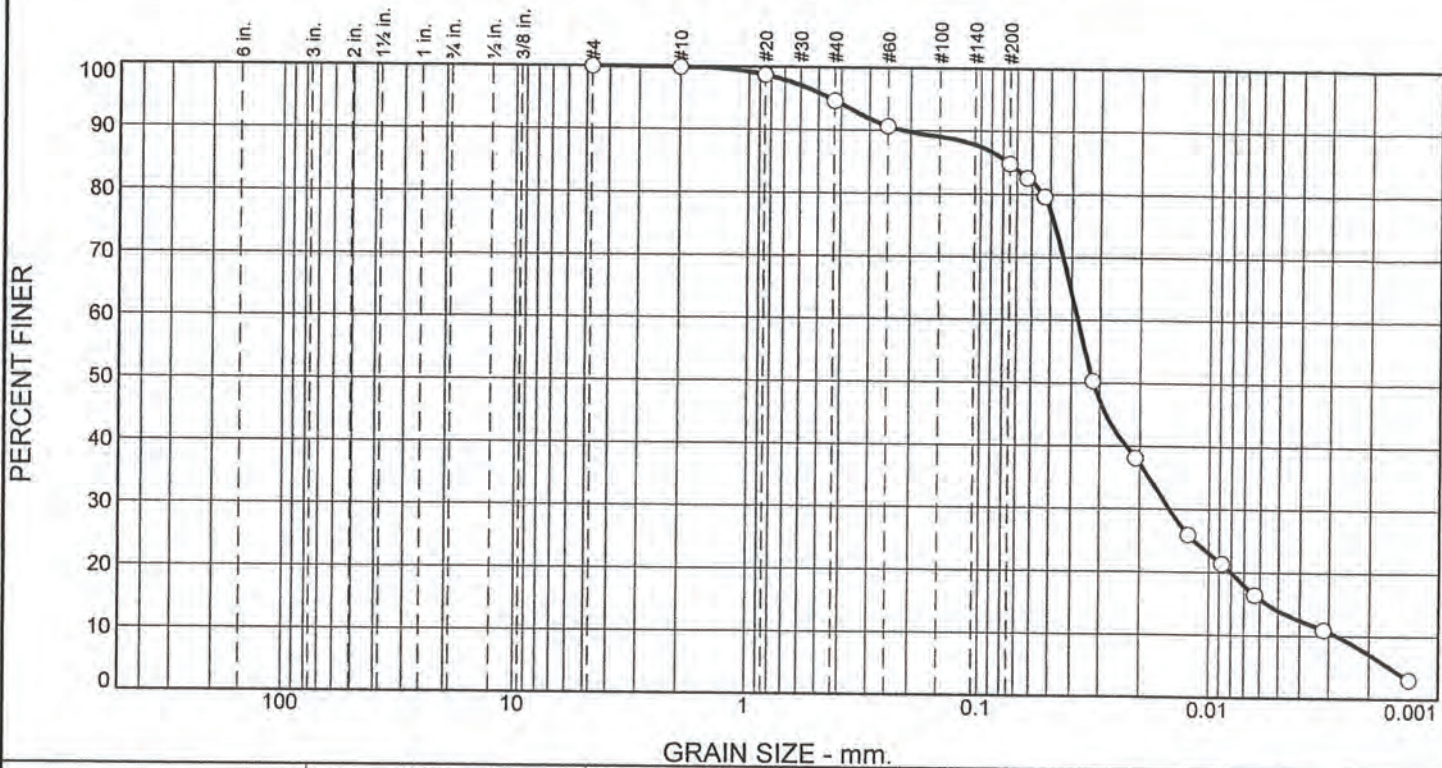
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.1	5.1	13.9	34.3	24.7	72.9			22.0

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0363	0.0419	0.0488	0.0690	0.2256	0.3458	0.4771	0.7386	1.9083	2.4594	3.2789	4.8148

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.34	17.61	1.64



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	5.2	9.8	77.8	7.1

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.9		
#20	98.7		
#40	94.7		
#60	90.7		
#200	84.9		
#230	82.6		
#270	79.7		
0.0321 mm.	50.3		
0.0209 mm.	38.1		
0.0123 mm.	25.9		
0.0088 mm.	21.4		
0.0063 mm.	16.4		
0.0032 mm.	11.0		
0.0013 mm.	3.0		

\* (no specification provided)

**Material Description**

Brownish Green Sandy SILT with Organic Materils

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= SM (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 0.2146      D<sub>85</sub>= 0.0756      D<sub>60</sub>= 0.0377  
D<sub>50</sub>= 0.0320      D<sub>30</sub>= 0.0149      D<sub>15</sub>= 0.0056  
D<sub>10</sub>= 0.0028      C<sub>u</sub>= 13.55      C<sub>c</sub>= 2.12

**Remarks**

ND = Not determined    vis = visual  
Specific Gravity is assumed  
Organic Contents = 13.3%

---

**Date Received:** 7/1/16      **Date Tested:** 6/17/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** FF10F-060616-SED-G      **Depth:** JAR      **Date Sampled:** 6/06/16  
**Sample Number:** NA



## GRAIN SIZE DISTRIBUTION TEST DATA

7/13/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** FF10F-060616-SED-G

**Depth:** JAR

**Sample Number:** NA

**Material Description:** Brownish Green Sandy SILT with Organic Materils

**Sample Date:** 6/06/16

**Date Received:** 7/1/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** SM (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not determined vis = visual

Specific Gravity is assumed

Organic Contents = 13.3%

**Tested By:** CS

**Test Date:** 6/17/16

**Checked By:** LBJ

**Title:** Lab Manager

### Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
79.26	0.00	0.00	#4	0.00	100.0
			#10	0.07	99.9
28.89	0.00	0.00	#20	0.34	98.7
			#40	1.50	94.7
			#60	2.67	90.7
			#200	4.34	84.9
			#230	5.00	82.6
			#270	5.85	79.7

### Hydrometer Test Data

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 84.9

Weight of hydrometer sample = 28.89

Hygroscopic moisture correction:

Moist weight and tare = 20.96

Dry weight and tare = 20.72

Tare weight = 15.63

Hygroscopic moisture = 4.7%

Table of composite correction values:

Temp., deg. C:           11.1           29.1

Comp. corr.:           -9.5           -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.2	23.0	16.5	0.0129	24.0	12.4	0.0321	50.3
5.00	23.2	19.0	12.5	0.0129	20.0	13.0	0.0209	38.1
15.00	23.2	15.0	8.5	0.0129	16.0	13.7	0.0123	25.9
30.00	23.2	13.5	7.0	0.0129	14.5	13.9	0.0088	21.4
60.00	22.7	12.0	5.4	0.0130	13.0	14.2	0.0063	16.4
250.00	21.5	10.5	3.6	0.0132	11.5	14.4	0.0032	11.0
1440.00	21.1	8.0	1.0	0.0133	9.0	14.8	0.0013	3.0

**Fractional Components**

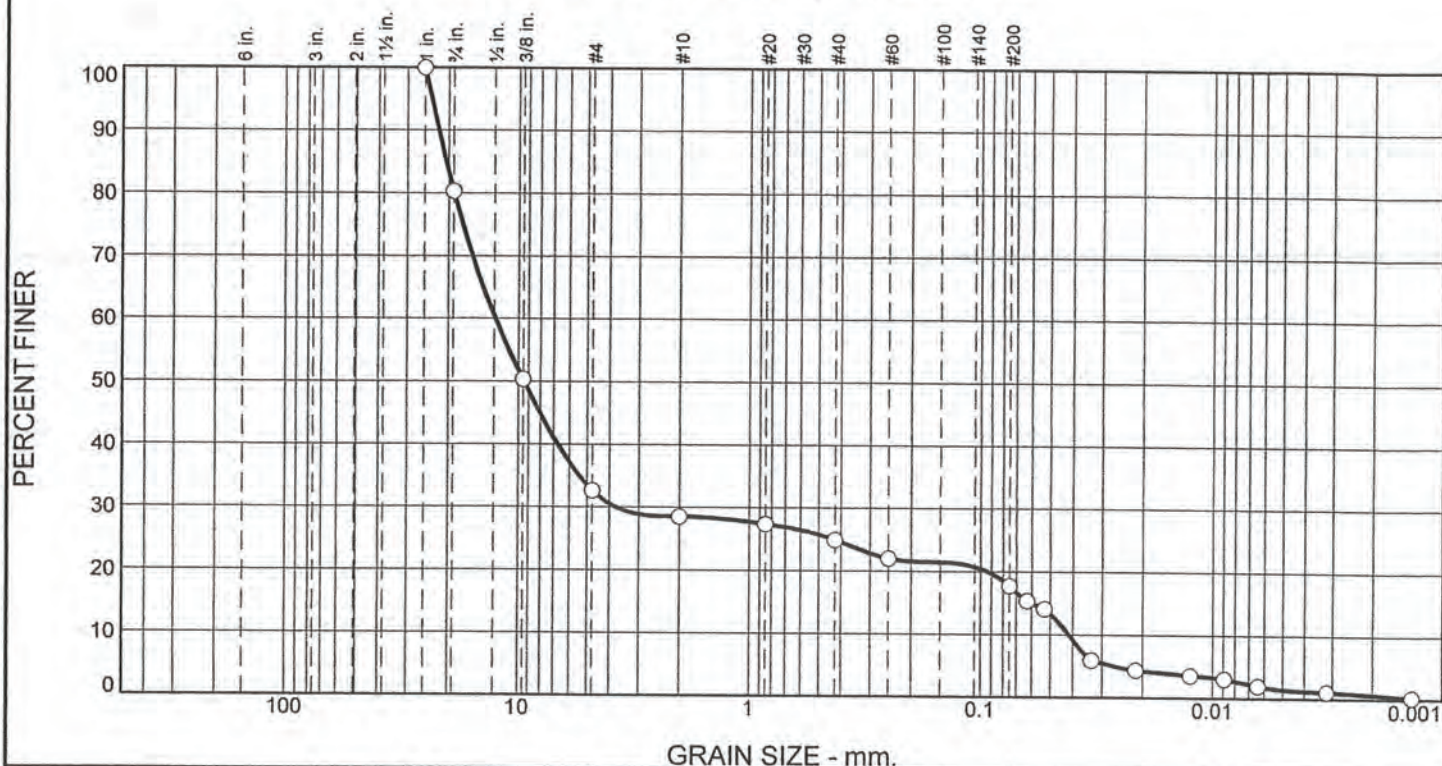
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	5.2	9.8	15.1	77.8	7.1	84.9

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0016	0.0028	0.0056	0.0080	0.0149	0.0229	0.0320	0.0377	0.0536	0.0756	0.2146	0.4402

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.22	13.55	2.12



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	19.6	47.8	4.0	3.7	7.2	17.0	0.7

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1	100.0		
3/4	80.4		
.375	50.3		
#4	32.6		
#10	28.6		
#20	27.4		
#40	24.9		
#60	22.0		
#200	17.7		
#230	15.4		
#270	14.1		
0.0333 mm.	5.9		
0.0215 mm.	4.4		
0.0125 mm.	3.6		
0.0089 mm.	3.1		
0.0064 mm.	2.0		
0.0032 mm.	1.1		
0.0013 mm.	0.3		

\* (no specification provided)

**Material Description**

Olive Green Silty SAND with broken Shells

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= SM (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 22.0589	D <sub>85</sub> = 20.4884	D <sub>60</sub> = 12.5514
D <sub>50</sub> = 9.4304	D <sub>30</sub> = 3.7595	D <sub>15</sub> = 0.0603
D <sub>10</sub> = 0.0417	C <sub>u</sub> = 300.92	C <sub>c</sub> = 27.00

**Remarks**

ND = Not determined    vis = visual  
 Broken Shells retain on Sieve #(3/4, 4 & 10)  
 Organic Content = 6.3%

---

**Date Received:** 6/16/16      **Date Tested:** 7/1/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** FF11F-060616-SED-G  
**Sample Number:** NA

**Depth:** Jar

**Date Sampled:** 6/06/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/13/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** FF11F-060616-SED-G

**Depth:** Jar

**Sample Number:** NA

**Material Description:** Olive Green Silty SAND with broken Shells

**Sample Date:** 6/06/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** SM (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not determined vis = visual

Broken Shells retain on Sieve #(3/4, 4 & 10)

Organic Content = 6.3%

**Tested By:** CS

**Test Date:** 7/1/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
232.08	0.00	0.00	1	0.00	100.0
			3/4	45.58	80.4
			.375	115.29	50.3
			#4	156.36	32.6
			#10	165.82	28.6
34.07	0.00	0.00	#20	1.37	27.4
			#40	4.30	24.9
			#60	7.82	22.0
			#200	12.94	17.7
			#230	15.73	15.4
			#270	17.30	14.1

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 17.7

Weight of hydrometer sample = 34.07

Hygroscopic moisture correction:

Moist weight and tare = 28.20

Dry weight and tare = 28.08

Tare weight = 15.40

Hygroscopic moisture = 0.9%

Table of composite correction values:

Temp., deg. C: 11.1                      29.1

Comp. corr.: -9.5                      -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.8	18.0	11.4	0.0130	19.0	13.2	0.0333	5.9
5.00	22.8	15.0	8.4	0.0130	16.0	13.7	0.0215	4.4
15.00	22.8	13.5	6.9	0.0130	14.5	13.9	0.0125	3.6
30.00	22.8	12.5	5.9	0.0130	13.5	14.1	0.0089	3.1
60.00	22.4	10.5	3.8	0.0131	11.5	14.4	0.0064	2.0

AMEC

**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	21.6	9.0	2.1	0.0132	10.0	14.7	0.0032	1.1
1440.00	21.1	7.5	0.5	0.0133	8.5	14.9	0.0013	0.3

**Fractional Components**

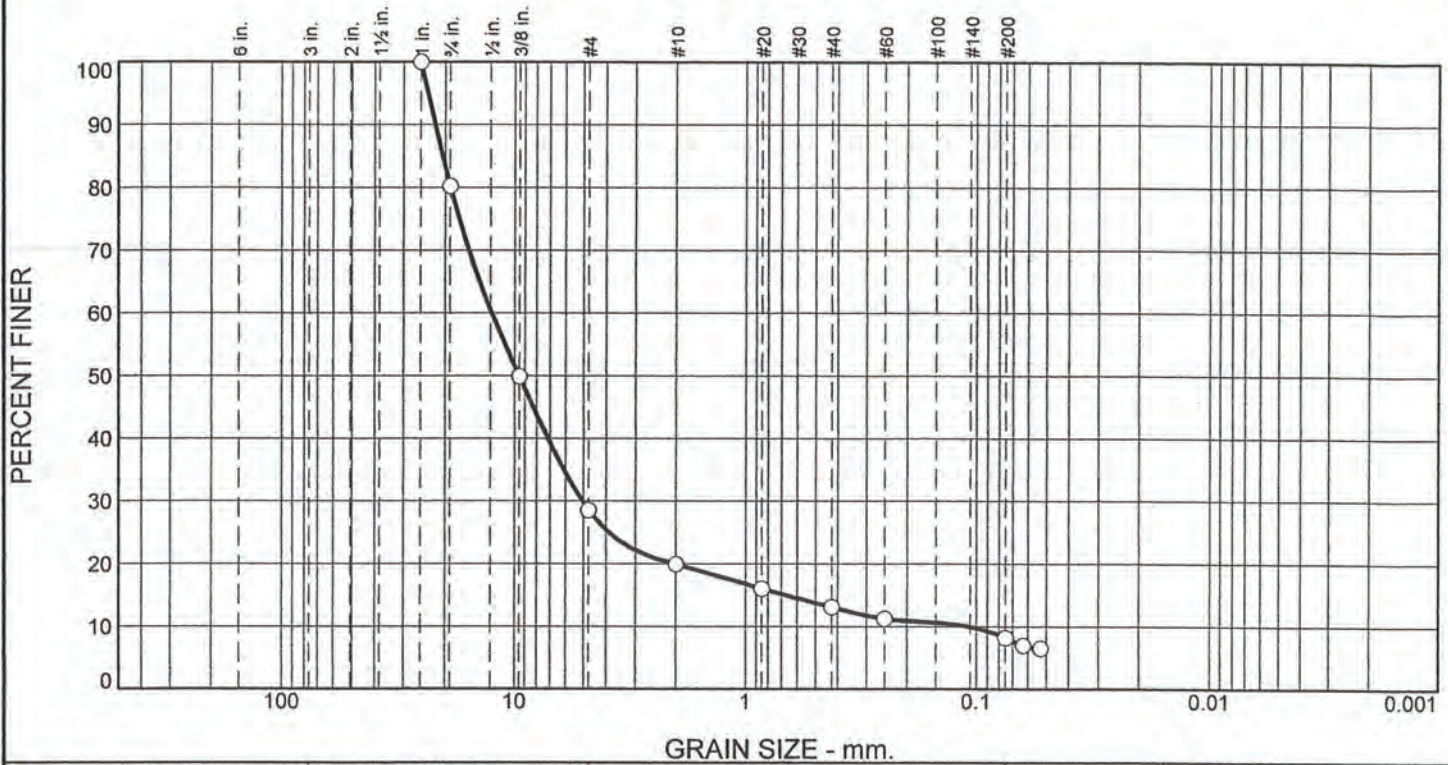
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	19.6	47.8	67.4	4.0	3.7	7.2	14.9	17.0	0.7	17.7

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0264	0.0417	0.0603	0.0935	3.7595	6.7308	9.4304	12.5514	18.9380	20.4884	22.0589	23.6853

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
5.09	300.92	27.00



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	19.7	51.7	8.7	6.8	4.9	8.2	

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1	100.0		
3/4	80.3		
.375	49.9		
#4	28.6		
#10	19.9		
#20	16.0		
#40	13.1		
#60	11.2		
#200	8.2		
#230	7.0		
#270	6.5		

\* (no specification provided)

**Material Description**

Gray Silty SAND with Gravels and Shells

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= SM (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 22.0812	D <sub>85</sub> = 20.5178	D <sub>60</sub> = 12.5661
D <sub>50</sub> = 9.5554	D <sub>30</sub> = 5.0632	D <sub>15</sub> = 0.6710
D <sub>10</sub> = 0.1080	C <sub>u</sub> = 116.39	C <sub>c</sub> = 18.89

**Remarks**

ND = not determined    vis = visual  
 Organic Contents = 3%  
 Gravels retain on Sieve #(3/4, 3/8), Shells retain on sieve #(4,10,

---

**Date Received:** 6/16/16                      **Date Tested:** 7/14/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** FF12F-060616-SED-G  
**Sample Number:** NA

**Depth:** Bulk

**Date Sampled:** 6/10/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** FF12F-060616-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Gray Silty SAND with Gravels and Shells

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** SM (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = not determined vis = visual

Organic Contents = 3%

Gravels retain on Sieve #(3/4, 3/8), Shells retain on sieve #(4,10,20)

**Tested By:** CS

**Test Date:** 7/14/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
160.86	0.00	0.00	1	0.00	100.0
			3/4	31.76	80.3
			.375	80.61	49.9
			#4	114.93	28.6
			#10	128.79	19.9
			#20	135.05	16.0
			#40	139.84	13.1
			#60	142.77	11.2
			#200	147.67	8.2
			#230	149.64	7.0
			#270	150.38	6.5

**Fractional Components**

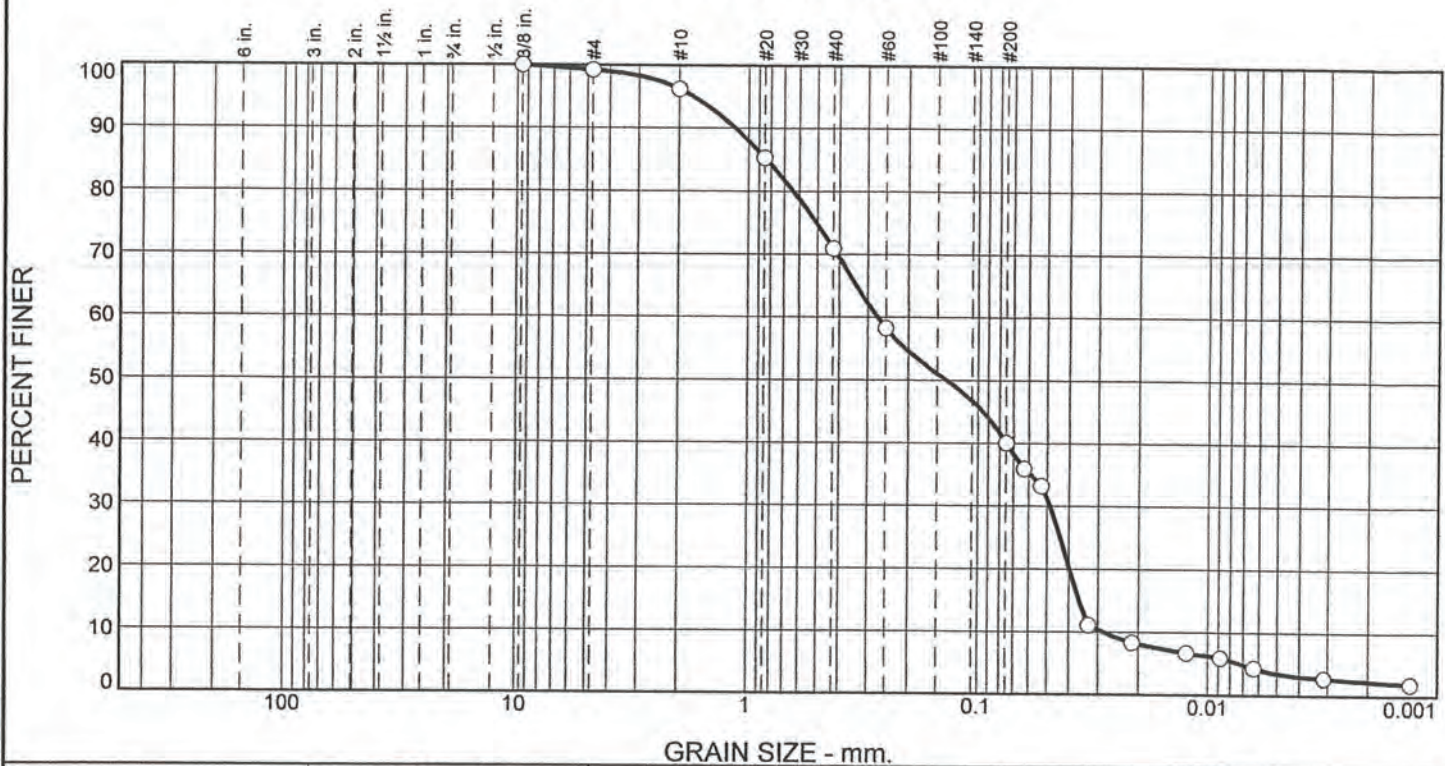
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	19.7	51.7	71.4	8.7	6.8	4.9	20.4			8.2

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.1080	0.6710	2.0290	5.0632	7.1489	9.5554	12.5661	18.9704	20.5178	22.0812	23.6976

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
5.66	116.39	18.89



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	3.0	25.3	30.8	37.8	2.3

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	99.2		
#10	96.2		
#20	85.3		
#40	70.9		
#60	58.3		
#200	40.1		
#230	36.0		
#270	33.2		
0.0330 mm.	11.1		
0.0213 mm.	8.3		
0.0124 mm.	6.7		
0.0088 mm.	5.9		
0.0063 mm.	4.3		
0.0031 mm.	2.7		
0.0013 mm.	1.9		

\* (no specification provided)

**Material Description**

Grayish Brown Silty SAND

**Atterberg Limits (ASTM D 4318)**

PL= 33      LL= 40      PI= 7

**Classification**

USCS (D 2487)= SM      AASHTO (M 145)= A-4(0)

**Coefficients**

D<sub>90</sub>= 1.1407      D<sub>85</sub>= 0.8346      D<sub>60</sub>= 0.2720  
 D<sub>50</sub>= 0.1367      D<sub>30</sub>= 0.0484      D<sub>15</sub>= 0.0362  
 D<sub>10</sub>= 0.0284      C<sub>u</sub>= 9.56      C<sub>c</sub>= 0.30

**Remarks**

Specific Gravity is assumed  
Organic Contents = 7.4%

---

**Date Received:** 6/16/16      **Date Tested:** 7/16/16  
**Tested By:** CS  
**Checked By:** LBJ  
**Title:** Lab Manager

**Source of Sample:** FF14F-060616-SED-G  
**Sample Number:** NA

**Depth:** Bulk

**Date Sampled:** 6/10/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Project Number: 3616166052.04.03  
 Location: FF14F-060616-SED-G  
 Depth: Bulk  
 Material Description: Grayish Brown Silty SAND  
 Sample Date: 6/10/16  
 Date Received: 6/16/16      PL: 33  
 USCS Classification: SM  
 Grain Size Test Method: ASTM D 422-63(07)E2014  
 Testing Remarks: Specific Gravity is assumed

Sample Number: NA  
 LL: 40      PI: 7  
 AASHTO Classification: A-4(0)

Organic Contents = 7.4%

Tested By: CS

Test Date: 7/16/16

Checked By: LBJ

Title: Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
183.15	0.00	0.00	.375	0.00	100.0
			#4	1.42	99.2
			#10	6.87	96.2
50.54	0.00	0.00	#20	5.74	85.3
			#40	13.30	70.9
			#60	19.95	58.3
			#200	29.50	40.1
			#230	31.66	36.0
			#270	33.11	33.2

**Hydrometer Test Data**

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 40.1  
 Weight of hydrometer sample = 50.54

Hygroscopic moisture correction:

Moist weight and tare = 26.21

Dry weight and tare = 25.95

Tare weight = 15.46

Hygroscopic moisture = 2.5%

Table of composite correction values:

Temp., deg. C:                      11.1                      29.1

Comp. corr.:                              -9.5                      -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	20.5	13.8	0.0131	21.5	12.8	0.0330	11.1
5.00	22.4	17.0	10.3	0.0131	18.0	13.3	0.0213	8.3
15.00	22.5	15.0	8.3	0.0130	16.0	13.7	0.0124	6.7
30.00	22.7	14.0	7.4	0.0130	15.0	13.8	0.0088	5.9
60.00	22.7	12.0	5.4	0.0130	13.0	14.2	0.0063	4.3
250.00	22.7	10.0	3.4	0.0130	11.0	14.5	0.0031	2.7
1440.00	22.5	9.0	2.3	0.0130	10.0	14.7	0.0013	1.9



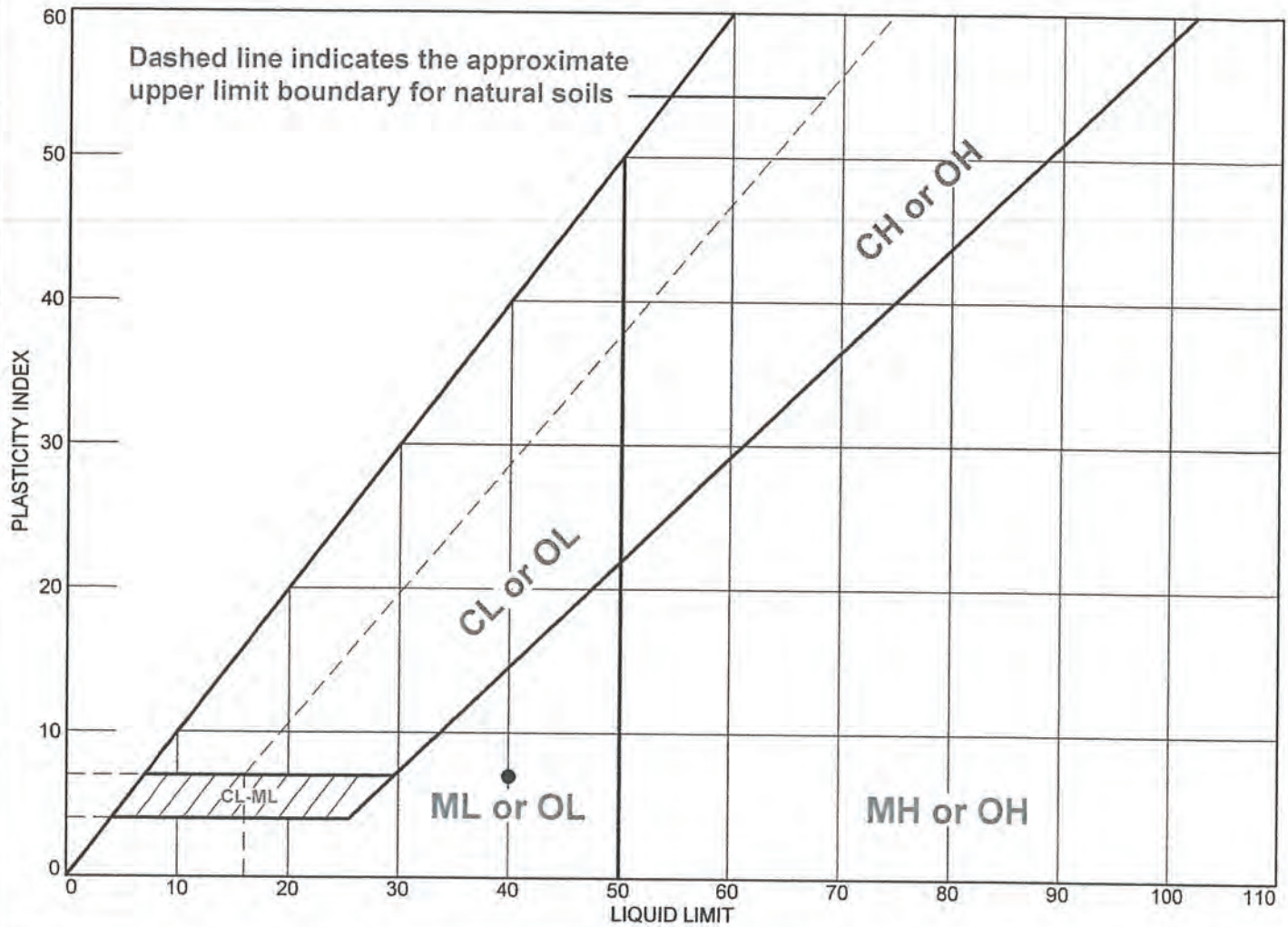
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.8	0.8	3.0	25.3	30.8	59.1	37.8	2.3	40.1

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0072	0.0284	0.0362	0.0399	0.0484	0.0748	0.1367	0.2720	0.6393	0.8346	1.1407	1.7275

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
1.21	9.56	0.30

# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318



Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
Grayish Brown Silty SAND	6/10/16	7/16/16	CS	40	33	7	70.9	SM

Project No. 3616166052.04. Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Source of Sample: FF14F-060616-SED-G      Depth: Bulk      Sample Number: NA

○ ND = Not determined



Checked by: LBJ  
 Title: Lab Manager  
 Figure

Tested By: CS

Checked By: LBJ



**LIQUID AND PLASTIC LIMIT TEST DATA**

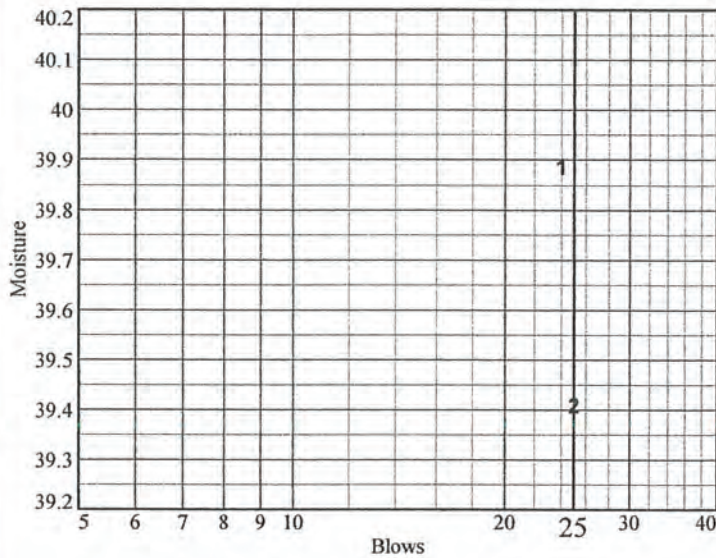
7/25/2016

Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Project Number: 3616166052.04.03  
 Location: FF14F-060616-SED-G  
 Depth: Bulk  
 Material Description: Grayish Brown Silty SAND  
 Sample Date: 6/10/16  
 USCS: SM  
 Testing Remarks: ND = Not determined  
 Tested by: CS                      Test Date: 7/16/16

Sample Number: NA  
 %<#40: 70.9  
 AASHTO: A-4(0)  
 Checked by: LBJ                      Title: Lab Manager

**Liquid Limit Data**

Run No.	1	2	3	4	5	6
Wet+Tare	19.26	17.68				
Dry+Tare	15.73	14.61				
Tare	6.88	6.82				
# Blows	24	25				
Moisture	39.9	39.4				



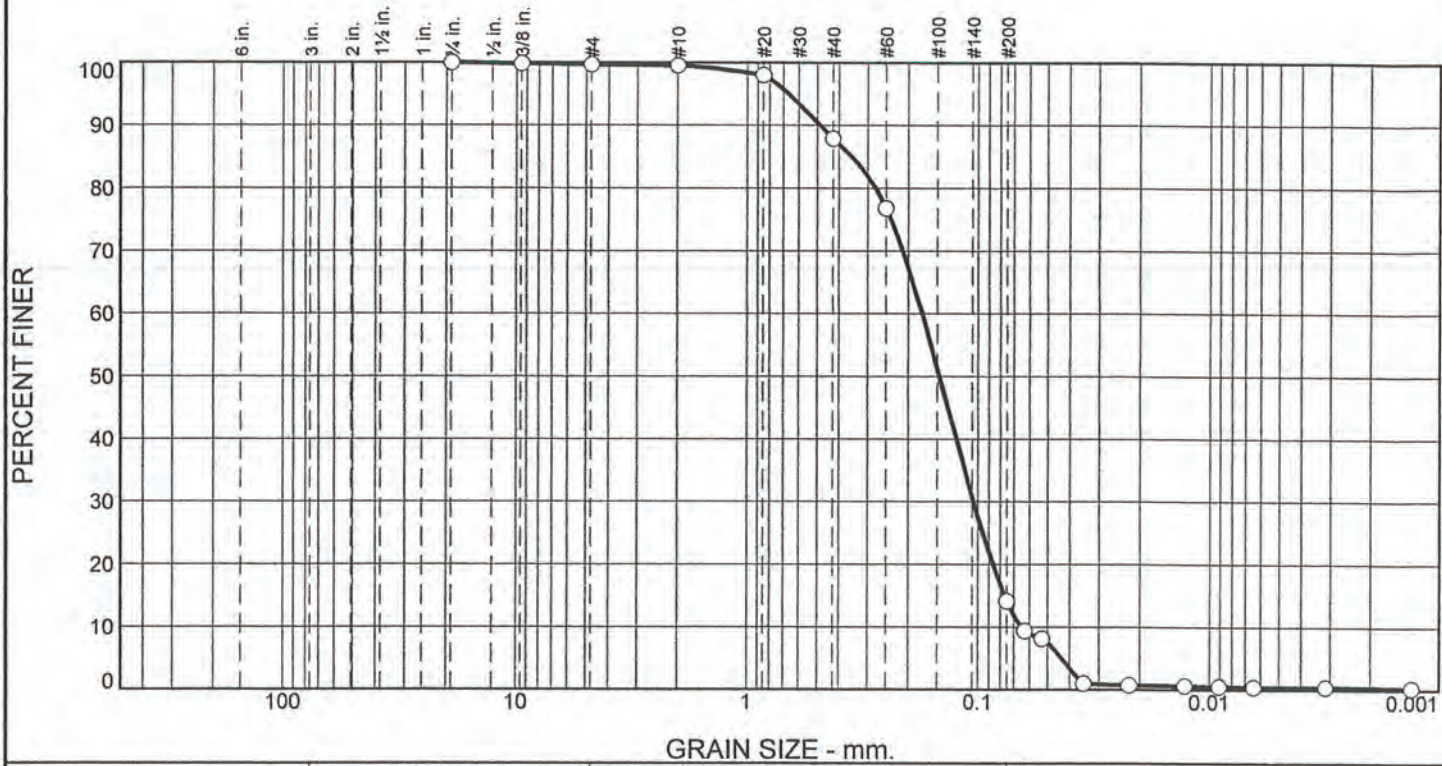
Liquid Limit= 40  
 Plastic Limit= 33  
 Plasticity Index= 7  
 Natural Moisture= ND

**Plastic Limit Data**

Run No.	1	2	3	4
Wet+Tare	27.76	21.11		
Dry+Tare	25.37	19.21		
Tare	18.05	13.35		
Moisture	32.7	32.4		



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.1	11.7	73.8	13.7	0.4

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	99.8		
#4	99.7		
#10	99.6		
#20	98.0		
#40	87.9		
#60	76.8		
#200	14.1		
#230	9.4		
#270	8.2		
0.0348 mm.	1.0		
0.0222 mm.	0.7		
0.0128 mm.	0.6		
0.0091 mm.	0.5		
0.0065 mm.	0.4		
0.0032 mm.	0.5		
0.0013 mm.	0.3		

\* (no specification provided)

**Material Description**

Grayish Green Silty SAND

**Atterberg Limits (ASTM D 4318)**

PL= NP                      LL= NV                      PI= NP

**Classification**

USCS (D 2487)= SM                      AASHTO (M 145)= A-2-4(0)

**Coefficients**

D<sub>90</sub>= 0.4848                      D<sub>85</sub>= 0.3523                      D<sub>60</sub>= 0.1744  
D<sub>50</sub>= 0.1469                      D<sub>30</sub>= 0.1047                      D<sub>15</sub>= 0.0768  
D<sub>10</sub>= 0.0652                      C<sub>u</sub>= 2.67                      C<sub>c</sub>= 0.96

**Remarks**

ND = Not determined, NP = Non Plastic, NV = No Value  
Specific Gravity is assumed  
Organic Content = 1.9%

---

Date Received: 6/16/16                      Date Tested: 7/14/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: FF16H-060616-SED-G  
Sample Number: NA

Depth: Bulk

Date Sampled: 6/10/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure



## GRAIN SIZE DISTRIBUTION TEST DATA

7/27/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** FF16H-060616-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Grayish Green Silty SAND

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** NP

**LL:** NV

**PI:** NP

**USCS Classification:** SM

**AASHTO Classification:** A-2-4(0)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not determined, NP = Non Plastic, NV = No Value

Specific Gravity is assumed

Organic Content = 1.9%

**Tested By:** CS

**Test Date:** 7/14/16

**Checked By:** LBJ

**Title:** Lab Manager

### Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
271.28	0.00	0.00	3/4	0.00	100.0
			.375	0.44	99.8
			#4	0.86	99.7
			#10	1.20	99.6
74.40	0.00	0.00	#20	1.17	98.0
			#40	8.71	87.9
			#60	17.00	76.8
			#200	63.85	14.1
			#230	67.38	9.4
			#270	68.30	8.2

### Hydrometer Test Data

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 14.1

Weight of hydrometer sample = 74.4

Hygroscopic moisture correction:

Moist weight and tare = 29.27

Dry weight and tare = 29.09

Tare weight = 15.47

Hygroscopic moisture = 1.3%

Table of composite correction values:

Temp., deg. C:           11.1           29.1

Comp. corr.:           -9.5           -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.7

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	12.0	5.3	0.0131	13.0	14.2	0.0348	1.0
5.00	22.4	10.5	3.8	0.0131	11.5	14.4	0.0222	0.7
15.00	22.5	10.0	3.3	0.0130	11.0	14.5	0.0128	0.6
30.00	22.5	9.5	2.8	0.0130	10.5	14.6	0.0091	0.5
60.00	22.4	9.0	2.3	0.0131	10.0	14.7	0.0065	0.4

AMEC

**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	22.6	9.0	2.4	0.0130	10.0	14.7	0.0032	0.5
1440.00	22.5	8.0	1.3	0.0130	9.0	14.8	0.0013	0.3

**Fractional Components**

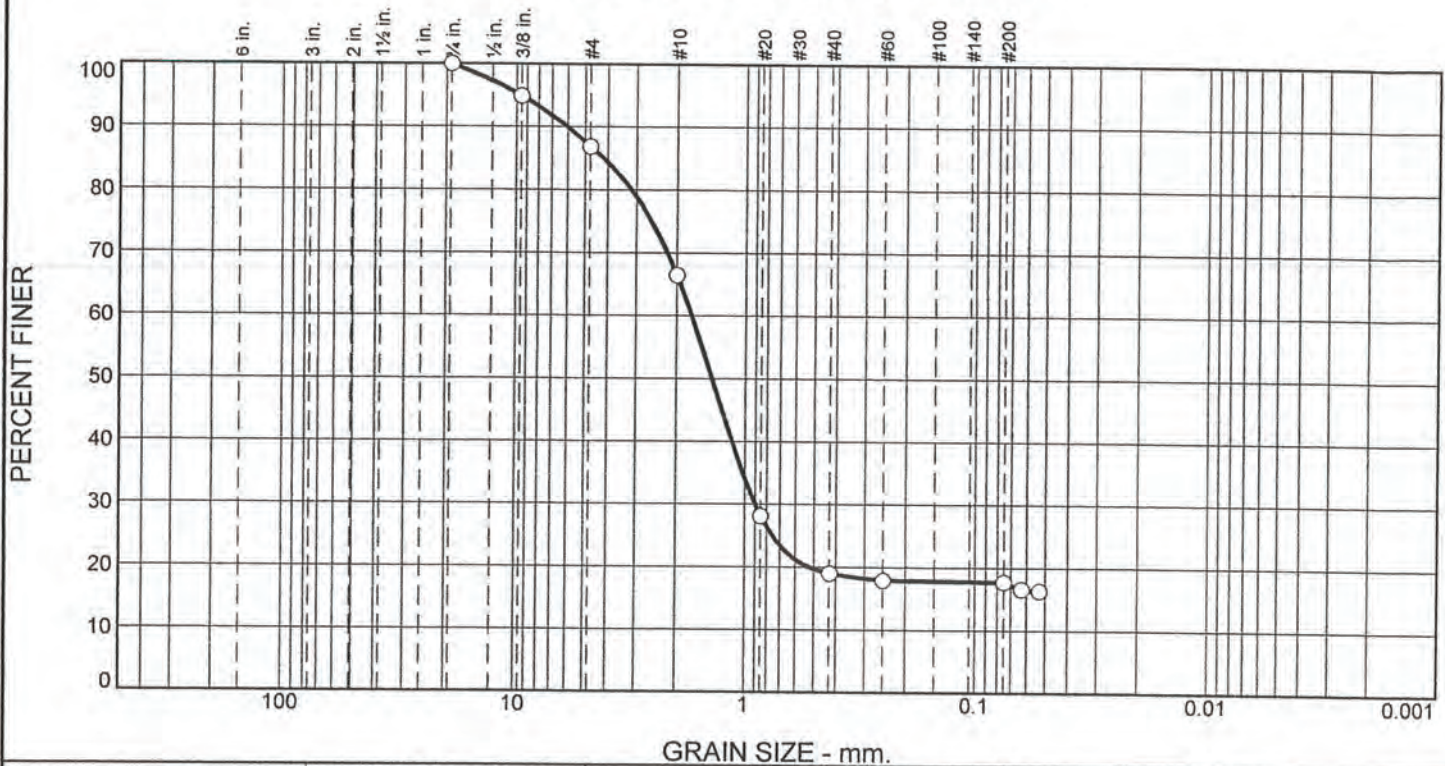
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.3	0.3	0.1	11.7	73.8	85.6	13.7	0.4	14.1

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0434	0.0652	0.0768	0.0863	0.1047	0.1243	0.1469	0.1744	0.2774	0.3523	0.4848	0.6645

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.75	2.67	0.96



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	13.1	20.4	47.5	1.3	17.7	

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	94.9		
#4	86.9		
#10	66.5		
#20	28.1		
#40	19.0		
#60	17.9		
#200	17.7		
#230	16.6		
#270	16.4		

\* (no specification provided)

**Material Description**

Brownish Black Silty SAND with small branch and woods chips

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= SM (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 6.0131      D<sub>85</sub>= 4.1687      D<sub>60</sub>= 1.7244  
D<sub>50</sub>= 1.4039      D<sub>30</sub>= 0.8991      D<sub>15</sub>=  
D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Remarks**

ND = Not Determined    vis = visual  
Sample is undersized  
Organic Content = 44 %

---

Date Received: 6/16/16      Date Tested: 6/20/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: BUI-061016-SED-GWC  
Sample Number: NA

Depth: NA

Date Sampled: 6/10/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/27/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** BU1-061016-SED-GWC

**Depth:** NA

**Sample Number:** NA

**Material Description:** Brownish Black Silty SAND with small branch and woods chips

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** SM (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not Determined vis = visual

Sample is undersized

Organic Content = 44 %

**Tested By:** CS

**Test Date:** 6/20/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
24.27	0.00	0.00	3/4	0.00	100.0
			.375	1.23	94.9
			#4	3.18	86.9
			#10	8.14	66.5
			#20	17.44	28.1
			#40	19.66	19.0
			#60	19.92	17.9
			#200	19.97	17.7
			#230	20.24	16.6
			#270	20.30	16.4

**Fractional Components**

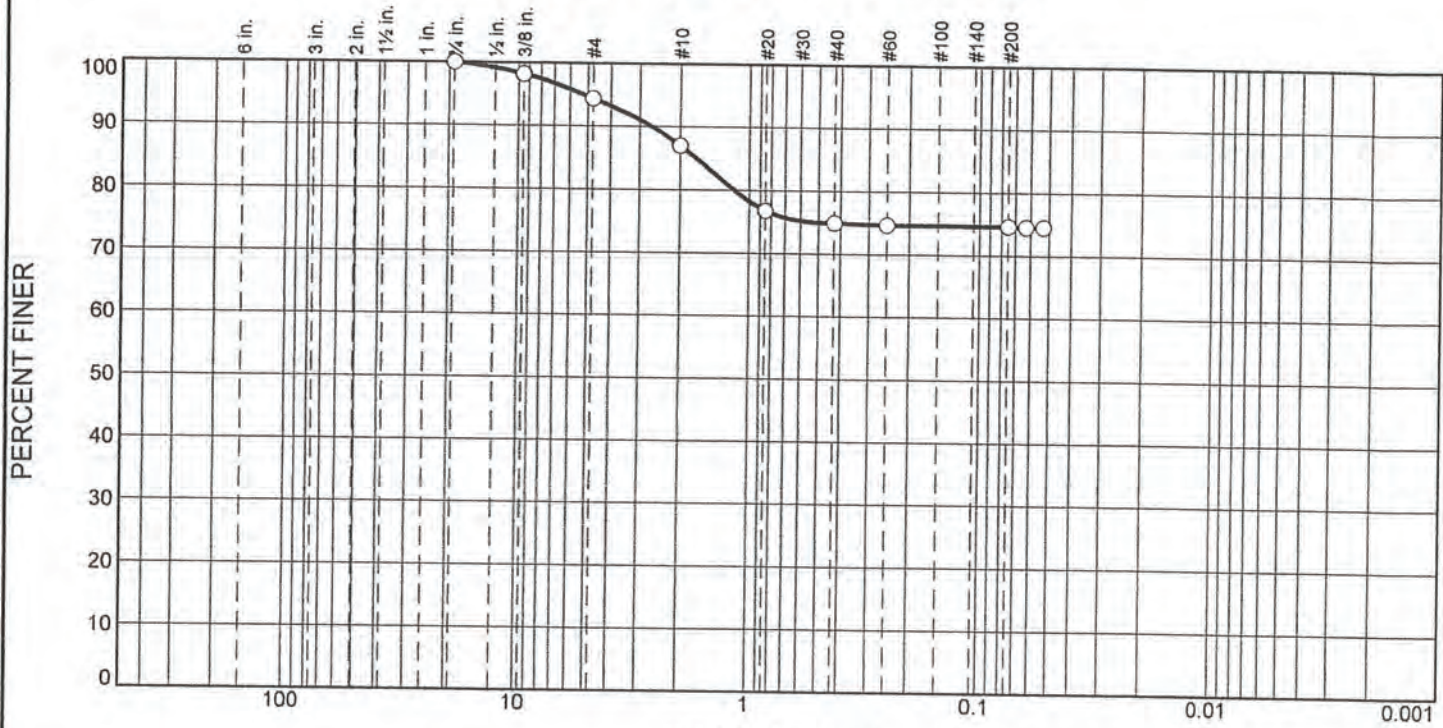
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	13.1	13.1	20.4	47.5	1.3	69.2			17.7

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
			0.5247	0.8991	1.1436	1.4039	1.7244	3.1531	4.1687	6.0131	9.5971

<b>Fineness Modulus</b>
3.47



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.6	7.4	12.1	0.3	74.6	

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	98.2		
#4	94.4		
#10	87.0		
#20	76.8		
#40	74.9		
#60	74.7		
#200	74.6		
#230	74.5		
#270	74.5		

\* (no specification provided)

**Material Description**

Brownish Black Sandy SILT with small Branches and Grass leaves

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 2.6544              D<sub>85</sub>= 1.7017              D<sub>60</sub>=  
D<sub>50</sub>=                      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Remarks**

Washed & Sieve only    ND = Not Determined  
Sample is undersized    vis = visual  
Organic Content = 45.9%

---

**Date Received:** 6/16/16              **Date Tested:** 6/17/16  
**Tested By:** CS  
**Checked By:** LBJ  
**Title:** Lab Manager

**Source of Sample:** BUI-061016-SED-G-WC-DUP  
**Sample Number:** NA

**Depth:** NA

**Date Sampled:** 6/10/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/12/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** BU1-061016-SED-G-WC-DUP

**Depth:** NA

**Sample Number:** NA

**Material Description:** Brownish Black Sandy SILT with small Branches and Grass leaves

**Sample Date:** 6/10/16

**Date Received:** 6/16/16      **PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** ML (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** Washed & Sieve only    ND = Not Determined

Sample is undersized    vis = visual

Organic Content = 45.9%

**Tested By:** CS

**Test Date:** 6/17/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
113.47	0.00	0.00	3/4	0.00	100.0
			.375	2.01	98.2
			#4	6.36	94.4
			#10	14.71	87.0
			#20	26.35	76.8
			#40	28.45	74.9
			#60	28.71	74.7
			#200	28.77	74.6
			#230	28.89	74.5
			#270	28.91	74.5

**Fractional Components**

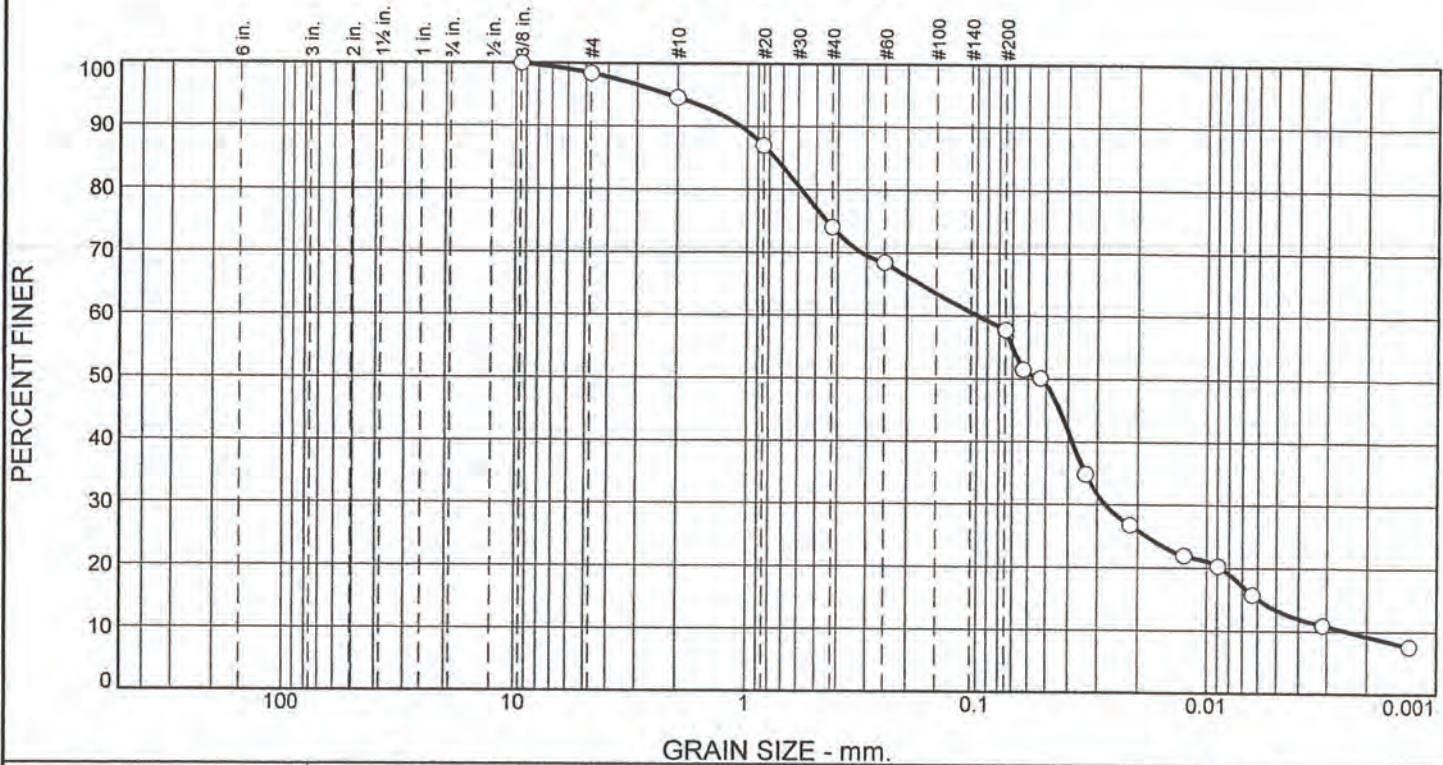
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.6	5.6	7.4	12.1	0.3	19.8			74.6

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
								1.1651	1.7017	2.6544	5.2169

<b>Fineness Modulus</b>
1.14



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	3.8	20.5	16.3	48.6	9.2

TEST RESULTS (ASTM D 422-63(07))			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	98.4		
#10	94.6		
#20	87.0		
#40	74.1		
#60	68.4		
#200	57.8		
#230	51.5		
#270	50.1		
0.0337 mm.	34.9		
0.0216 mm.	26.8		
0.0126 mm.	21.9		
0.0089 mm.	20.3		
0.0063 mm.	15.8		
0.0031 mm.	10.9		
0.0013 mm.	7.6		

\* (no specification provided)

**Material Description**

Greenish Brown Sandy Elastic SILT with large amount of organics

**Atterberg Limits (ASTM D 4318)**

PL= 65                      LL= 78                      PI= 13

**Classification**

USCS (D 2487)= MH                      AASHTO (M 145)= A-7-5(10)

**Coefficients**

D<sub>90</sub>= 1.0664                      D<sub>85</sub>= 0.7540                      D<sub>60</sub>= 0.0988  
D<sub>50</sub>= 0.0524                      D<sub>30</sub>= 0.0277                      D<sub>15</sub>= 0.0060  
D<sub>10</sub>= 0.0025                      C<sub>u</sub>= 40.15                      C<sub>c</sub>= 3.15

**Remarks**

Specific Gravity is assumed  
Organic Content = 26.9%

---

**Date Received:** 6/16/16                      **Date Tested:** 7/16/16  
**Tested By:** CS  
**Checked By:** LBJ  
**Title:** Lab Manager

**Source of Sample:** Bu2-060916-SED-G  
**Sample Number:** NA

**Depth:** Bulk

**Date Sampled:** 6/10/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu2-060916-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Greenish Brown Sandy Elastic SILT with large amount of organics

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** 65

**LL:** 78

**PI:** 13

**USCS Classification:** MH

**AASHTO Classification:** A-7-5(10)

**Grain Size Test Method:** ASTM D 422-63(07)

**Testing Remarks:** Specific Gravity is assumed

Organic Content = 26.9%

**Tested By:** CS

**Test Date:** 7/16/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
69.95	0.00	0.00	.375	0.00	100.0
			#4	1.10	98.4
			#10	3.79	94.6
19.87	0.00	0.00	#20	1.59	87.0
			#40	4.31	74.1
			#60	5.49	68.4
			#200	7.72	57.8
			#230	9.06	51.5
			#270	9.34	50.1

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 57.8

Weight of hydrometer sample = 19.87

Hygroscopic moisture correction:

Moist weight and tare = 19.63

Dry weight and tare = 18.95

Tare weight = 13.49

Hygroscopic moisture = 12.5%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.7

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.2	17.5	10.8	0.0131	18.5	13.3	0.0337	34.9
5.00	22.2	15.0	8.3	0.0131	16.0	13.7	0.0216	26.8
15.00	22.2	13.5	6.8	0.0131	14.5	13.9	0.0126	21.9
30.00	22.2	13.0	6.3	0.0131	14.0	14.0	0.0089	20.3
60.00	22.6	11.5	4.9	0.0130	12.5	14.2	0.0063	15.8
250.00	22.6	10.0	3.4	0.0130	11.0	14.5	0.0031	10.9
1440.00	22.5	9.0	2.3	0.0130	10.0	14.7	0.0013	7.6



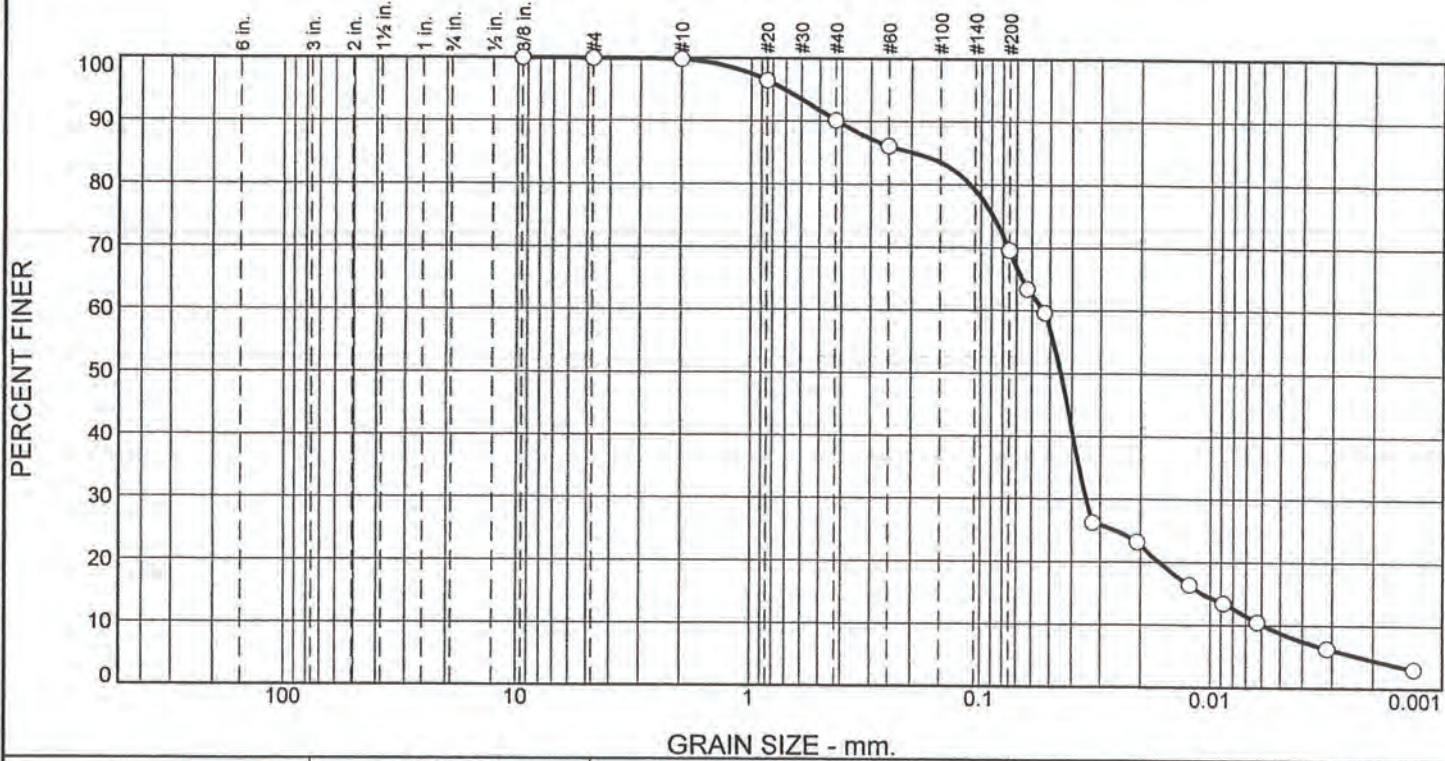
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.6	1.6	3.8	20.5	16.3	40.6	48.6	9.2	57.8

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0025	0.0060	0.0087	0.0277	0.0385	0.0524	0.0988	0.5815	0.7540	1.0664	2.1660

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
1.01	40.15	3.15

# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	9.6	20.6	65.1	4.5

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	100.0		
#10	99.8		
#20	96.5		
#40	90.2		
#60	86.1		
#200	69.6		
#230	63.4		
#270	59.7		
0.0323 mm.	26.3		
0.0207 mm.	23.2		
0.0123 mm.	16.4		
0.0088 mm.	13.4		
0.0063 mm.	10.5		
0.0032 mm.	6.3		
0.0013 mm.	3.0		

\* (no specification provided)

**Material Description**

Greenish Brown Sandy SILT

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 0.4172      D<sub>85</sub>= 0.1948      D<sub>60</sub>= 0.0535  
D<sub>50</sub>= 0.0449      D<sub>30</sub>= 0.0346      D<sub>15</sub>= 0.0109  
D<sub>10</sub>= 0.0059      C<sub>u</sub>= 9.03      C<sub>c</sub>= 3.78

**Remarks**

ND = Not Determined    vis = visual  
Woods retain on Sieves (# 4,10,20)  
Organic Contents = 12%

---

Date Received: 6/16/16      Date Tested: 7/1/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: Bu3-060916-SED-G  
Sample Number: NA

Depth: Jar

Date Sampled: 6/09/16



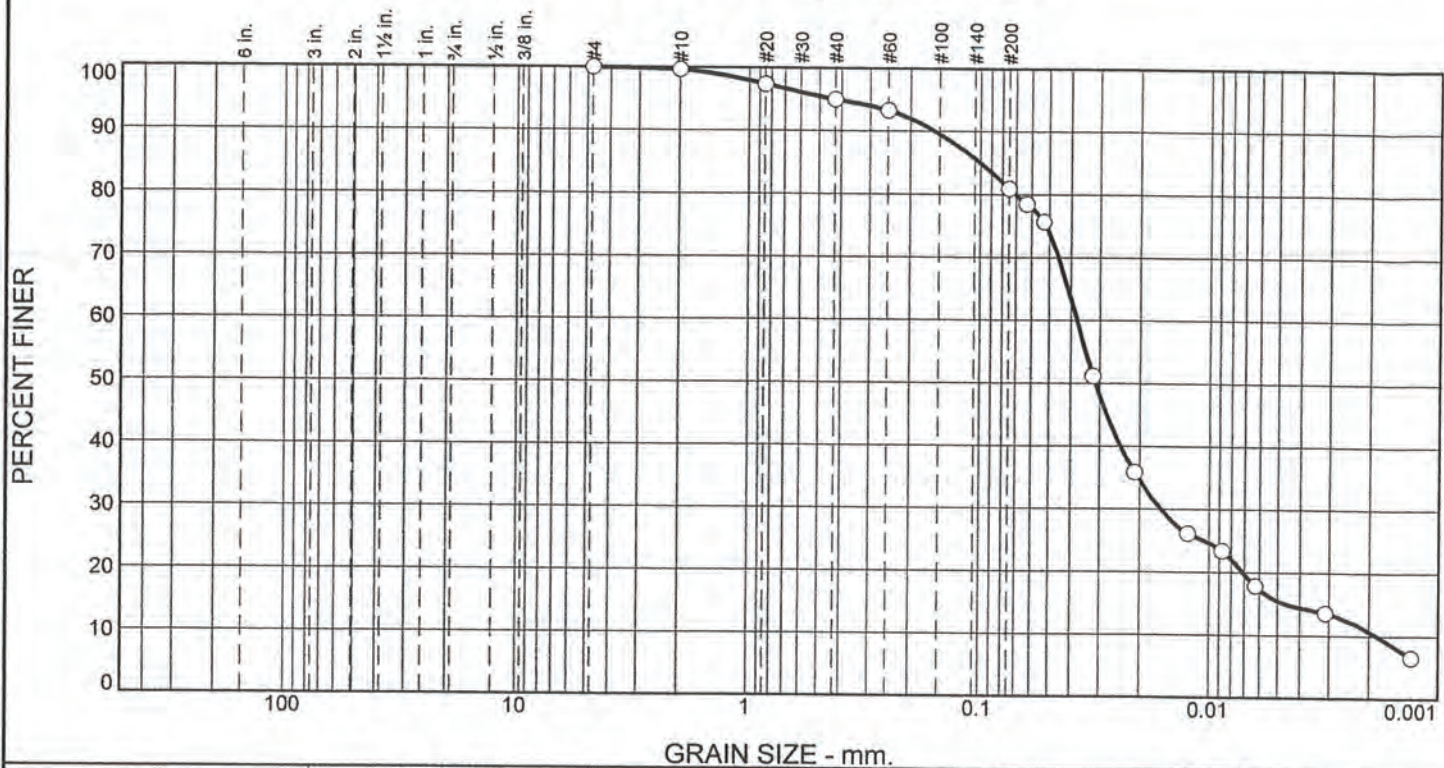
Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	4.7	14.0	70.3	10.7

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.7		
#20	97.4		
#40	95.0		
#60	93.3		
#200	81.0		
#230	78.5		
#270	75.7		
0.0320 mm.	51.2		
0.0210 mm.	35.9		
0.0124 mm.	26.2		
0.0088 mm.	23.5		
0.0063 mm.	17.9		
0.0031 mm.	13.6		
0.0013 mm.	6.6		

\* (no specification provided)

**Material Description**

Greenish Brown Elastic SILT with Sand and organic Contents

**Atterberg Limits (ASTM D 4318)**

PL= 58                      LL= 72                      PI= 14

**Classification**

USCS (D 2487)= MH                      AASHTO (M 145)= A-7-5(19)

**Coefficients**

D <sub>90</sub> = 0.1570	D <sub>85</sub> = 0.1002	D <sub>60</sub> = 0.0377
D <sub>50</sub> = 0.0313	D <sub>30</sub> = 0.0162	D <sub>15</sub> = 0.0046
D <sub>10</sub> = 0.0019	C <sub>u</sub> = 20.25	C <sub>c</sub> = 3.75

**Remarks**

Specigic Gravity is assumed  
Organic Content = 15.5%

**Date Received:** 6/16/16                      **Date Tested:** 7/14/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** Bu4-060916 SED-G                      **Depth:** Bulk                      **Date Sampled:** 6/10/16  
**Sample Number:** NA



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/27/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu4-060916 SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Greenish Brown Elastic SILT with Sand and organic Contents

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** 58

**LL:** 72

**PI:** 14

**USCS Classification:** MH

**AASHTO Classification:** A-7-5(19)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** Specigic Gravity is assumed

Organic Content = 15.5%

**Tested By:** CS

**Test Date:** 7/14/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
84.70	0.00	0.00	#4	0.00	100.0
			#10	0.26	99.7
29.13	0.00	0.00	#20	0.67	97.4
			#40	1.37	95.0
			#60	1.87	93.3
			#200	5.47	81.0
			#230	6.20	78.5
			#270	7.01	75.7

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 81.0

Weight of hydrometer sample = 29.13

Hygroscopic moisture correction:

Moist weight and tare = 29.10

Dry weight and tare = 28.89

Tare weight = 15.49

Hygroscopic moisture = 1.6%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	25.0	18.3	0.0131	26.0	12.0	0.0320	51.2
5.00	22.5	19.5	12.8	0.0130	20.5	12.9	0.0210	35.9
15.00	22.6	16.0	9.4	0.0130	17.0	13.5	0.0124	26.2
30.00	22.7	15.0	8.4	0.0130	16.0	13.7	0.0088	23.5
60.00	22.7	13.0	6.4	0.0130	14.0	14.0	0.0063	17.9
250.00	22.6	11.5	4.9	0.0130	12.5	14.2	0.0031	13.6
1440.00	22.5	9.0	2.3	0.0130	10.0	14.7	0.0013	6.6

**Fractional Components**

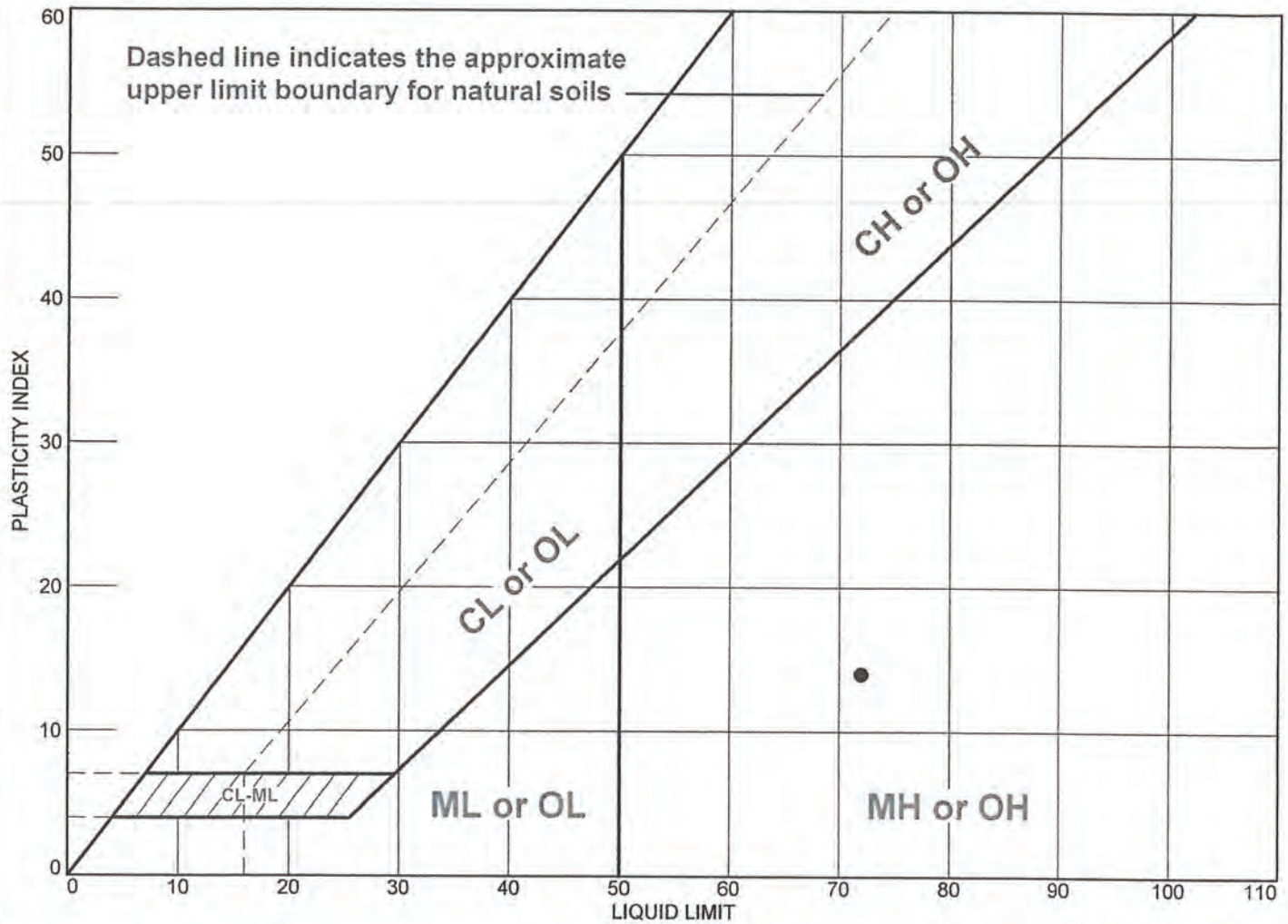
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	4.7	14.0	19.0	70.3	10.7	81.0

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0019	0.0046	0.0071	0.0162	0.0242	0.0313	0.0377	0.0703	0.1002	0.1570	0.4243

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.22	20.25	3.75



# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318



Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
Greenish Brown Elastic SILT with Sand and organic Contents	6/10/16	7/14/16	CS	72	58	14	95.0	MH

**Project No.** 3616166052.04 **Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Source of Sample:** Bu4-060916 SED-G      **Depth:** Bulk      **Sample Number:** NA

○ND = Not determined



**Checked by:** LBJ  
**Title:** Lab Manager  
**Figure**

**Tested By:** CS      **Checked By:** LBJ



**LIQUID AND PLASTIC LIMIT TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Project Number:** 3616166052.04.03  
**Location:** Bu4-060916 SED-G

**Depth:** Bulk **Sample Number:** NA

**Material Description:** Greenish Brown Elastic SILT with Sand and organic Contents

**Sample Date:** 6/10/16 **%<#40:** 95.0

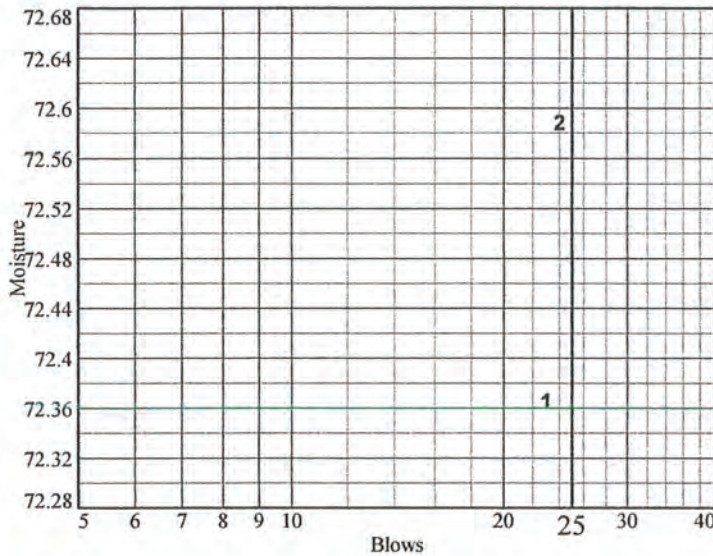
**USCS:** MH **AASHTO:** A-7-5(19)

**Testing Remarks:** ND = Not determined

**Tested by:** CS **Test Date:** 7/14/16 **Checked by:** LBJ **Title:** Lab Manager

**Liquid Limit Data**

Run No.	1	2	3	4	5	6
Wet+Tare	19.76	29.32				
Dry+Tare	16.12	23.60				
Tare	11.09	15.72				
# Blows	23	24				
Moisture	72.4	72.6				



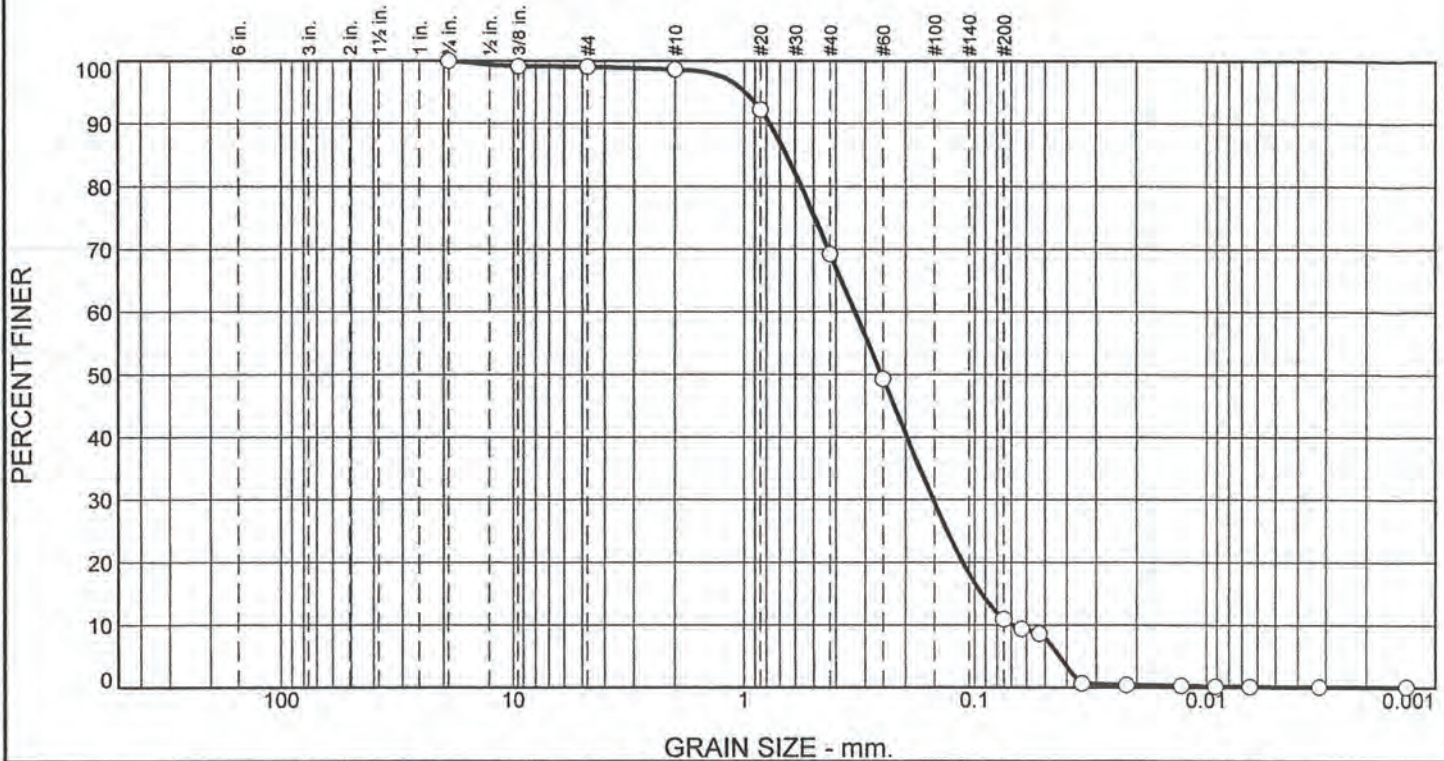
Liquid Limit= 72  
 Plastic Limit= 58  
 Plasticity Index= 14  
 Natural Moisture= ND

**Plastic Limit Data**

Run No.	1	2	3	4
Wet+Tare	13.13	11.60		
Dry+Tare	10.86	9.86		
Tare	6.95	6.86		
Moisture	58.1	58.0		



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	0.5	29.3	58.4	10.8	0.1

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	99.2		
#4	99.1		
#10	98.6		
#20	92.2		
#40	69.3		
#60	49.3		
#200	10.9		
#230	9.4		
#270	8.6		
0.0346 mm.	0.7		
0.0221 mm.	0.5		
0.0128 mm.	0.3		
0.0091 mm.	0.2		
0.0065 mm.	0.2		
0.0032 mm.	0.1		
0.0013 mm.	0.1		

\* (no specification provided)

**Material Description**

Greenish Brown Silty SAND

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= SM (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 0.7753              D<sub>85</sub>= 0.6548              D<sub>60</sub>= 0.3318  
D<sub>50</sub>= 0.2544              D<sub>30</sub>= 0.1517              D<sub>15</sub>= 0.0935  
D<sub>10</sub>= 0.0692              C<sub>u</sub>= 4.80                      C<sub>c</sub>= 1.00

**Remarks**

ND = Not determined    vis = visual  
3/8 = Coal, #4 = Barks, & # 10 = Gravel  
Organic Content = 2.1%

---

Date Received: 6/16/16              Date Tested: 7/1/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: Bu19L-060716-SED-G  
Sample Number: NA

Depth: Jar

Date Sampled: 6/07/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/13/2016

Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Project Number: 3616166052.04.03  
 Location: Bu19L-060716-SED-G

Depth: Jar Sample Number: NA  
 Material Description: Greenish Brown Silty SAND

Sample Date: 6/07/16  
 Date Received: 6/16/16 PL: ND LL: ND PI: ND

USCS Classification: SM (vis) AASHTO Classification: ND

Grain Size Test Method: ASTM D 422-63(07)E2014

Testing Remarks: ND = Not determined vis = visual  
 3/8 = Coal, #4 = Barks, & # 10 = Gravel  
 Organic Content = 2.1%

Tested By: CS Test Date: 7/1/16  
 Checked By: LBJ Title: Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
288.87	0.00	0.00	3/4	0.00	100.0
			.375	2.45	99.2
			#4	2.67	99.1
			#10	4.05	98.6
102.23	0.00	0.00	#20	6.61	92.2
			#40	30.42	69.3
			#60	51.09	49.3
			#200	90.91	10.9
			#230	92.52	9.4
			#270	93.30	8.6

**Hydrometer Test Data**

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 10.9  
 Weight of hydrometer sample = 102.23

Hygroscopic moisture correction:

Moist weight and tare = 29.19  
 Dry weight and tare = 29.14  
 Tare weight = 15.54  
 Hygroscopic moisture = 0.4%

Table of composite correction values:

Temp., deg. C: 11.1 29.1  
 Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	13.0	6.3	0.0131	14.0	14.0	0.0346	0.7
5.00	22.3	11.0	4.3	0.0131	12.0	14.3	0.0221	0.5
15.00	22.3	10.0	3.3	0.0131	11.0	14.5	0.0128	0.3
30.00	22.3	9.0	2.3	0.0131	10.0	14.7	0.0091	0.2
60.00	22.2	8.5	1.8	0.0131	9.5	14.7	0.0065	0.2
250.00	21.4	8.0	1.1	0.0132	9.0	14.8	0.0032	0.1

AMEC



**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
1440.00	21.1	8.0	1.0	0.0133	9.0	14.8	0.0013	0.1

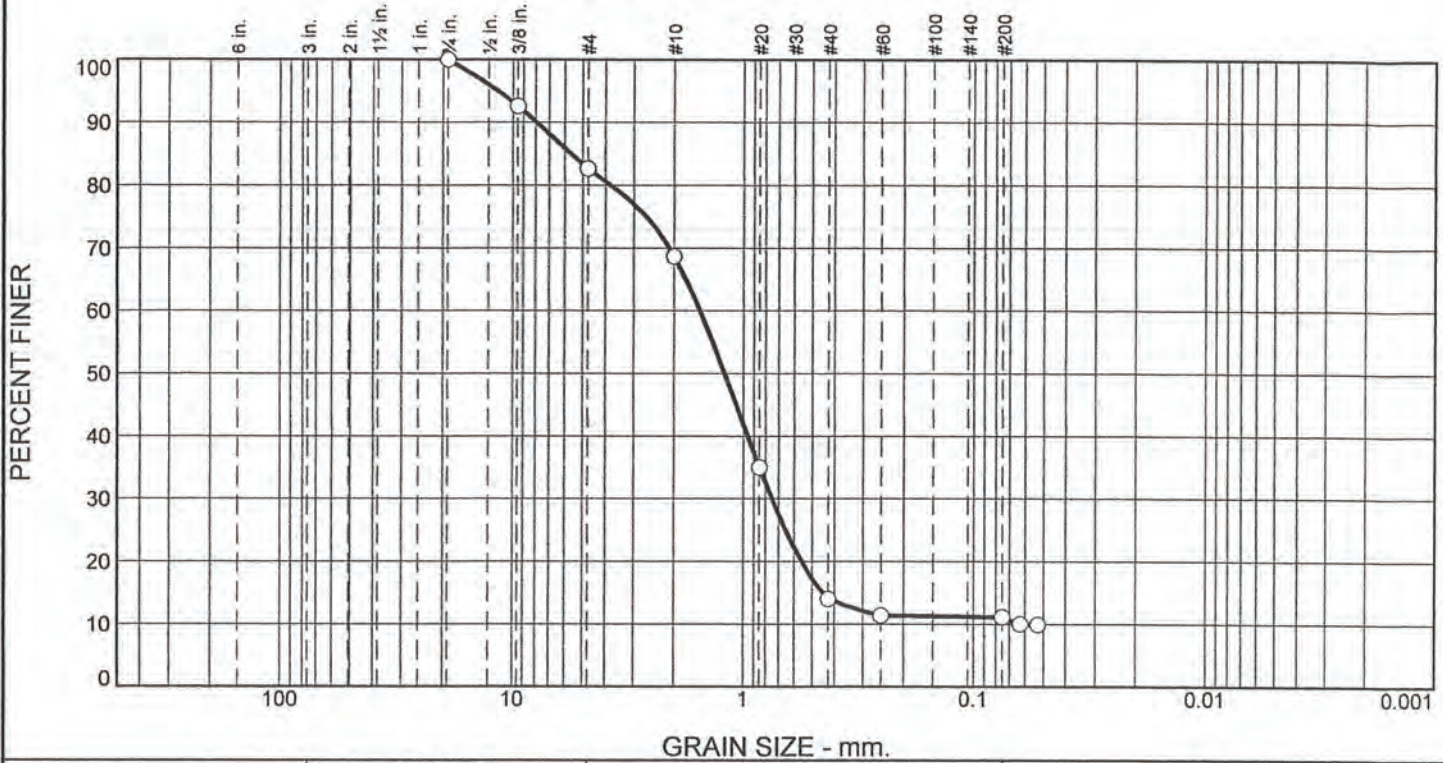
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.9	0.9	0.5	29.3	58.4	88.2	10.8	0.1	10.9

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0431	0.0692	0.0935	0.1127	0.1517	0.1970	0.2544	0.3318	0.5662	0.6548	0.7753	0.9898

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
1.38	4.80	1.00

# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	17.3	14.0	54.7	2.9	11.1	

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	92.6		
#4	82.7		
#10	68.7		
#20	35.0		
#40	14.0		
#60	11.4		
#200	11.1		
#230	10.0		
#270	9.9		

\* (no specification provided)

**Material Description**

Brown Organic Silt with Sand, Barks, Wood Chips & Peats  
Sample was comprised of 90% barks, wood chips, and organic matter which is reflected as sand & gravel on grainsize report.

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= OL (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 7.9128	D <sub>85</sub> = 5.6339	D <sub>60</sub> = 1.5447
D <sub>50</sub> = 1.2086	D <sub>30</sub> = 0.7488	D <sub>15</sub> = 0.4497
D <sub>10</sub> = 0.0632	C <sub>u</sub> = 24.44	C <sub>c</sub> = 5.74

**Remarks**

ND = Not determined    vis = visual  
3/8 = Barks, Barks & Wood & Chips retain on Sieve#(4,10, 20), Wood Chips #40 Sieve. *org. content 4.5*

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**Date Received:** 6/16/16                      **Date Tested:** 7/1/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** Bu20L-060716-SED-G                      **Depth:** Jar                      **Date Sampled:** 6/07/16  
**Sample Number:** NA



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/13/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu20L-060716-SED-G

**Depth:** Jar

**Sample Number:** NA

**Material Description:** Brown Organic Silt with Sand, Barks, Wood Chips & Peats

Sample was comprised of 90% barks, wood chips, and organic matter which is reflected as sand & gravel on grainsize report.

**Sample Date:** 6/07/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** OL (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not determined vis = visual

3/8 = Barks, Barks & Wood & Chips retain on Sieve#(4,10,

20), Wood Chips #40 Sieve.

Peats retain on Sieve #(60,200,230,270)

**Tested By:** CS

**Test Date:** 7/1/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
22.93	0.00	0.00	3/4	0.00	100.0
			.375	1.70	92.6
			#4	3.97	82.7
			#10	7.18	68.7
			#20	14.90	35.0
			#40	19.71	14.0
			#60	20.32	11.4
			#200	20.38	11.1
			#230	20.64	10.0
			#270	20.66	9.9

**Fractional Components**

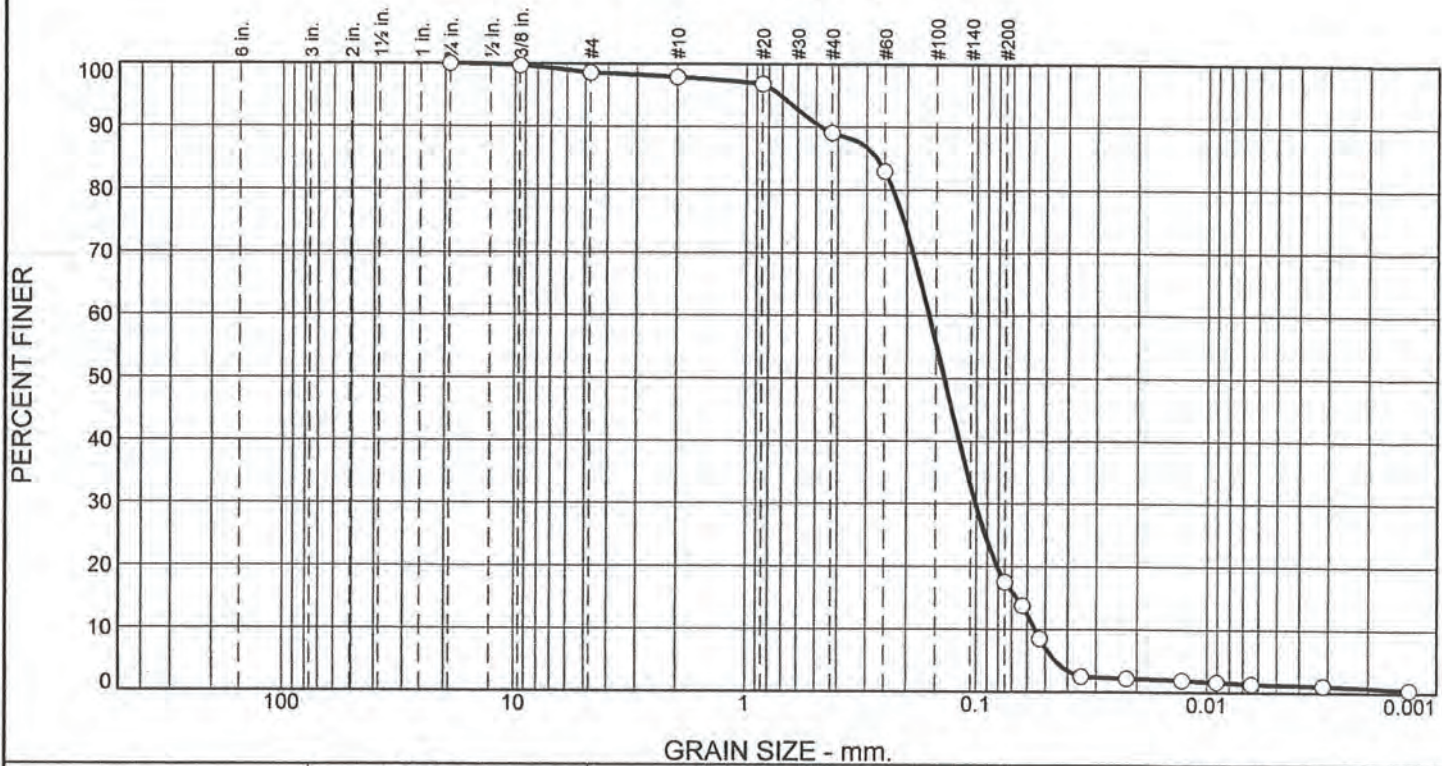
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	17.3	17.3	14.0	54.7	2.9	71.6			11.1

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0632	0.4497	0.5561	0.7488	0.9575	1.2086	1.5447	3.7933	5.6339	7.9128	11.6094

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
3.57	24.44	5.74



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	0.7	8.8	71.6	16.7	0.8

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	99.7		
#4	98.6		
#10	97.9		
#20	96.9		
#40	89.1		
#60	83.0		
#200	17.5		
#230	13.8		
#270	8.5		
0.0350 mm.	2.5		
0.0222 mm.	2.2		
0.0128 mm.	1.9		
0.0091 mm.	1.6		
0.0064 mm.	1.4		
0.0032 mm.	1.1		
0.0013 mm.	0.5		

\* (no specification provided)

**Material Description**

Dark Brown Silty SAND with organic material

**Atterberg Limits (ASTM D 4318)**

PL= NP                      LL= NV                      PI= NP

**Classification**

USCS (D 2487)= SM                      AASHTO (M 145)= A-2-4(0)

**Coefficients**

D<sub>90</sub>= 0.4743                      D<sub>85</sub>= 0.2699                      D<sub>60</sub>= 0.1604  
D<sub>50</sub>= 0.1382                      D<sub>30</sub>= 0.1009                      D<sub>15</sub>= 0.0665  
D<sub>10</sub>= 0.0556                      C<sub>u</sub>= 2.88                      C<sub>c</sub>= 1.14

**Remarks**

Specific gravity is assumed  
Organic Contents = 8.9%  
NP = Non Plastic NV = No Value

---

**Date Received:** 6/16/16                      **Date Tested:** 7/14/16  
**Tested By:** CS  
**Checked By:** LBJ  
**Title:** Lab Supervisor

**Source of Sample:** Bu21R-060716-SED-G  
**Sample Number:** NA

**Depth:** Bulk

**Date Sampled:** 6/10/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu21R-060716-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Dark Brown Silty SAND with organic material

**Sample Date:** 6/10/16

**Date Received:** 6/16/16      **PL:** NP

**LL:** NV

**PI:** NP

**USCS Classification:** SM

**AASHTO Classification:** A-2-4(0)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** Specific gravity is assumed

Organic Contents = 8.9%

NP = Non Plastic NV = No Value

Barks retained on 3/8,#4, #10

**Tested By:** CS

**Test Date:** 7/14/16

**Checked By:** LBJ

**Title:** Lab Supervisor

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
125.06	0.00	0.00	3/4	0.00	100.0
			.375	0.35	99.7
			#4	1.79	98.6
			#10	2.60	97.9
31.40	0.00	0.00	#20	0.33	96.9
			#40	2.83	89.1
			#60	4.79	83.0
			#200	25.79	17.5
			#230	26.98	13.8
			#270	28.67	8.5

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 17.5

Weight of hydrometer sample = 31.40

Hygroscopic moisture correction:

Moist weight and tare = 22.34

Dry weight and tare = 21.83

Tare weight = 11.40

Hygroscopic moisture = 4.9%

Table of composite correction values:

Temp., deg. C:            11.1            29.1

Comp. corr.:            -9.5            -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.2	11.0	4.3	0.0131	12.0	14.3	0.0350	2.5
5.00	22.2	10.5	3.8	0.0131	11.5	14.4	0.0222	2.2
15.00	22.3	10.0	3.3	0.0131	11.0	14.5	0.0128	1.9
30.00	22.5	9.5	2.8	0.0130	10.5	14.6	0.0091	1.6
60.00	22.6	9.0	2.4	0.0130	10.0	14.7	0.0064	1.4

**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	22.6	8.5	1.9	0.0130	9.5	14.7	0.0032	1.1
1440.00	22.5	7.5	0.8	0.0130	8.5	14.9	0.0013	0.5

**Fractional Components**

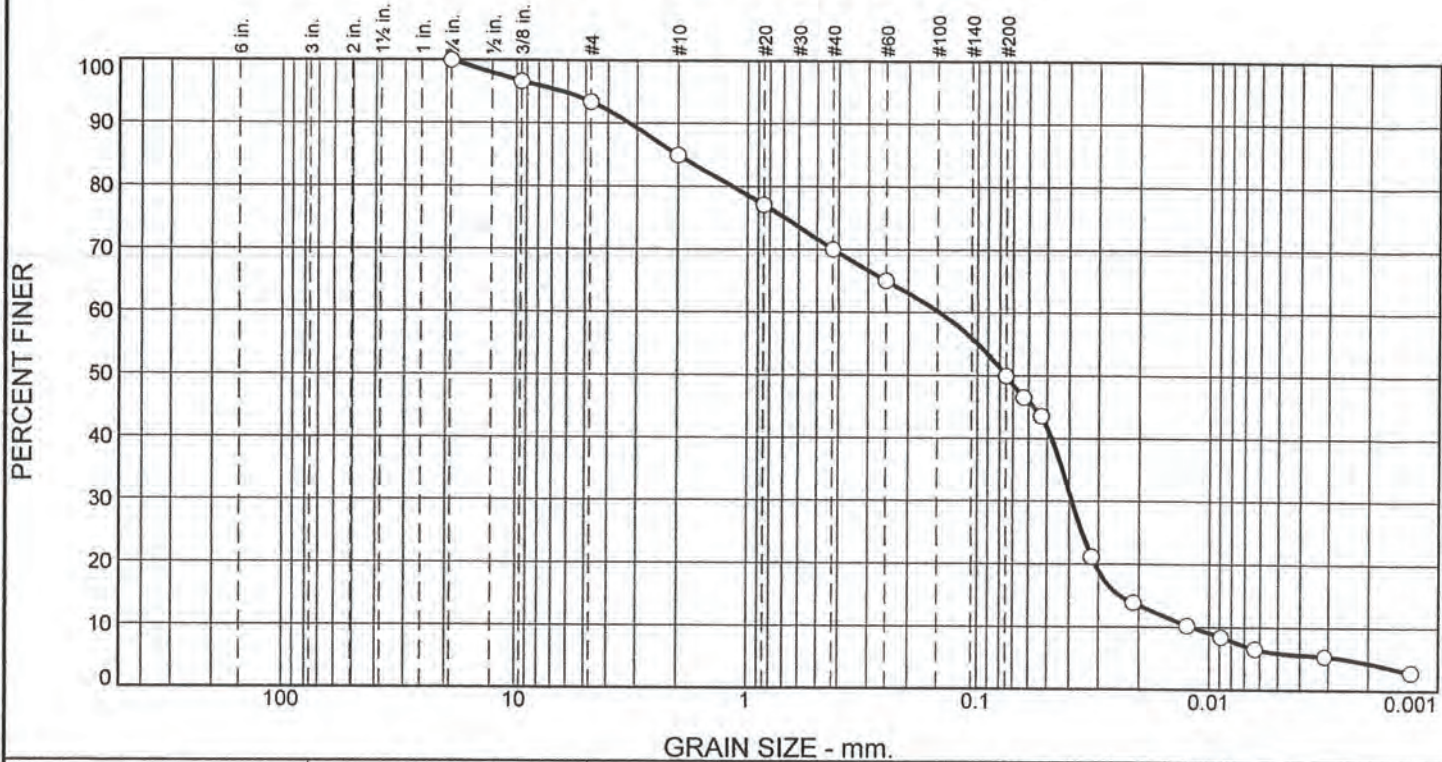
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.4	1.4	0.7	8.8	71.6	81.1	16.7	0.8	17.5

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0454	0.0556	0.0665	0.0814	0.1009	0.1189	0.1382	0.1604	0.2300	0.2699	0.4743	0.7120

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.71	2.88	1.14



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.6	8.4	15.0	20.0	45.7	4.3

TEST RESULTS (ASTM D 422-63(07)2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	96.7		
#4	93.4		
#10	85.0		
#20	77.1		
#40	70.0		
#60	65.0		
#200	50.0		
#230	46.5		
#270	43.6		
0.0322 mm.	21.2		
0.0212 mm.	13.9		
0.0124 mm.	10.2		
0.0089 mm.	8.4		
0.0063 mm.	6.6		
0.0031 mm.	5.4		
0.0013 mm.	2.9		

\* (no specification provided)

**Material Description**

Grayish Brown Sandy SILT with Gravel

**Atterberg Limits (ASTM D 4318)**

PL= 33                      LL= 43                      PI= 10

**Classification**

USCS (D 2487)= ML                      AASHTO (M 145)= A-5(3)

**Coefficients**

D<sub>90</sub>= 3.2270                      D<sub>85</sub>= 2.0020                      D<sub>60</sub>= 0.1465  
D<sub>50</sub>= 0.0752                      D<sub>30</sub>= 0.0390                      D<sub>15</sub>= 0.0242  
D<sub>10</sub>= 0.0119                      C<sub>u</sub>= 12.28                      C<sub>c</sub>= 0.87

**Remarks**

Specific Gravity is assumed  
Organic Content = 4.8%

Date Received: 6/16/16                      Date Tested: 7/16/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: Bu24R.060716-SED-G  
Sample Number: NA

Depth: Bulk

Date Sampled: 6/10/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation  
Project No: 3616166052.04.03                      Figure



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu24R.060716-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Grayish Brown Sandy SILT with Gravel

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** 33

**LL:** 43

**PI:** 10

**USCS Classification:** ML

**AASHTO Classification:** A-5(3)

**Grain Size Test Method:** ASTM D 422-63(07)2014

**Testing Remarks:** Specific Gravity is assumed

Organic Content = 4.8%

**Tested By:** CS

**Test Date:** 7/16/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
199.40	0.00	0.00	3/4	0.00	100.0
			.375	6.61	96.7
			#4	13.11	93.4
			#10	29.93	85.0
42.52	0.00	0.00	#20	3.94	77.1
			#40	7.50	70.0
			#60	9.98	65.0
			#200	17.53	50.0
			#230	19.24	46.5
			#270	20.73	43.6

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 50.0

Weight of hydrometer sample = 42.52

Hygrosopic moisture correction:

Moist weight and tare = 22.81

Dry weight and tare = 22.45

Tare weight = 15.49

Hygrosopic moisture = 5.2%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	24.0	17.3	0.0131	25.0	12.2	0.0322	21.2
5.00	22.5	18.0	11.3	0.0130	19.0	13.2	0.0212	13.9
15.00	22.6	15.0	8.4	0.0130	16.0	13.7	0.0124	10.2
30.00	22.6	13.5	6.9	0.0130	14.5	13.9	0.0089	8.4
60.00	22.6	12.0	5.4	0.0130	13.0	14.2	0.0063	6.6
250.00	22.7	11.0	4.4	0.0130	12.0	14.3	0.0031	5.4
1440.00	22.5	9.0	2.3	0.0130	10.0	14.7	0.0013	2.9

**Fractional Components**

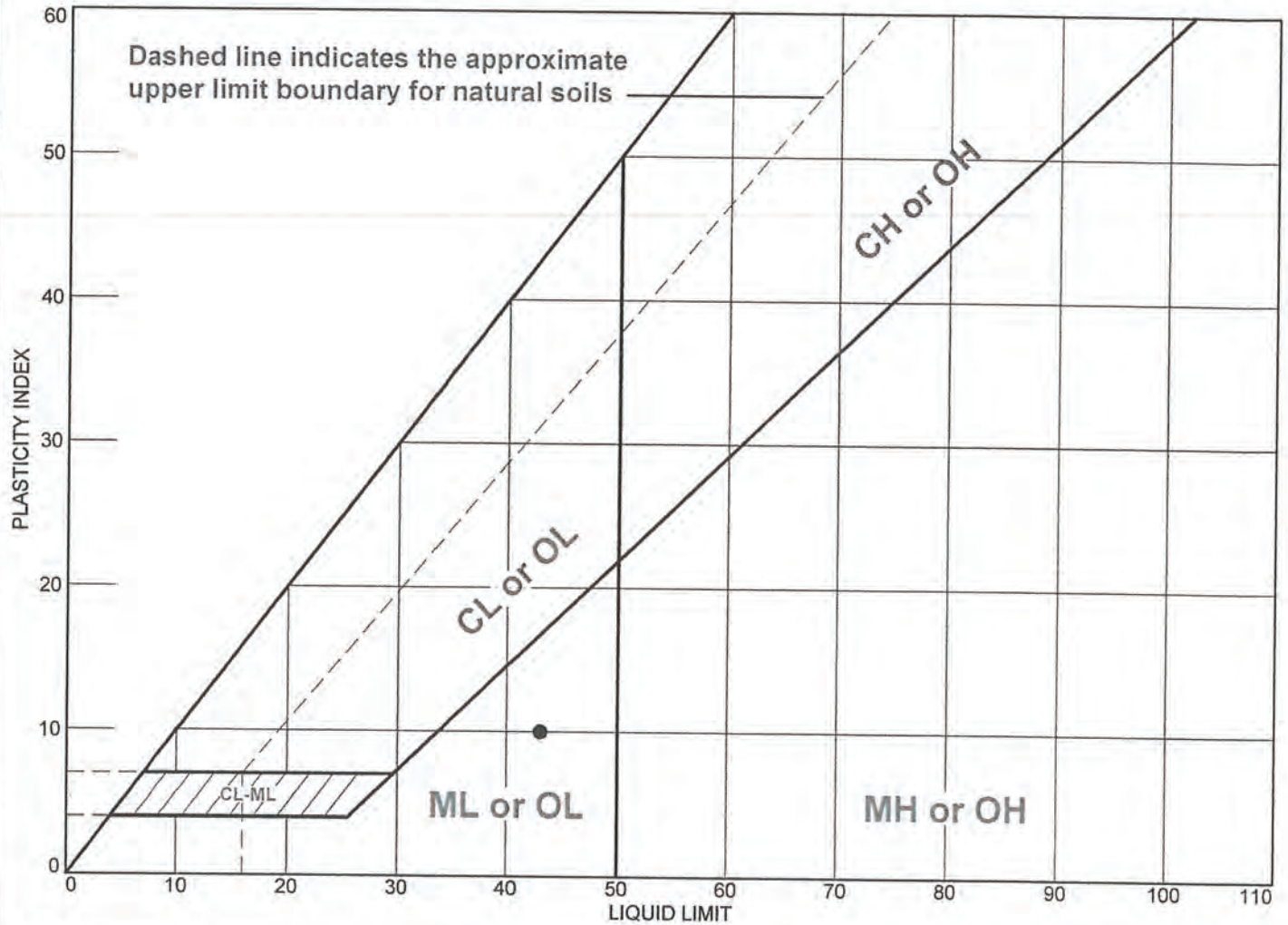
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	6.6	6.6	8.4	15.0	20.0	43.4	45.7	4.3	50.0

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0025	0.0119	0.0242	0.0312	0.0390	0.0478	0.0752	0.1465	1.1630	2.0020	3.2270	6.2614

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
1.43	12.28	0.87



# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318



Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
Grayish Brown Sandy SILT with Gravel	6/10/16	7/16/16	CS	43	33	10	70.0	ML

**Project No.** 3616166052.04 **Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Source of Sample:** Bu24R.060716-SED-G      **Depth:** Bulk      **Sample Number:** NA

○ ND = Not determined



**Checked by:** LBJ  
**Title:** Lab Manager  
**Figure**

Tested By: CS

Checked By: LBJ

## LIQUID AND PLASTIC LIMIT TEST DATA

7/25/2016

**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Project Number:** 3616166052.04.03  
**Location:** Bu24R.060716-SED-G

**Depth:** Bulk **Sample Number:** NA

**Material Description:** Grayish Brown Sandy SILT with Gravel

**Sample Date:** 6/10/16 **%<#40:** 70.0

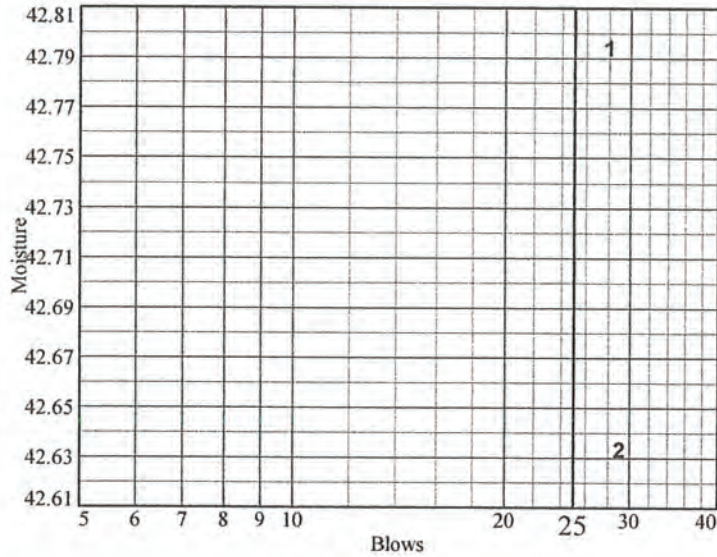
**USCS:** ML **AASHTO:** A-5(3)

**Testing Remarks:** ND = Not determined

**Tested by:** CS **Test Date:** 7/16/16 **Checked by:** LBJ **Title:** Lab Manager

### Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	34.02	28.97				
Dry+Tare	30.13	24.34				
Tare	21.04	13.48				
# Blows	28	29				
Moisture	42.8	42.6				



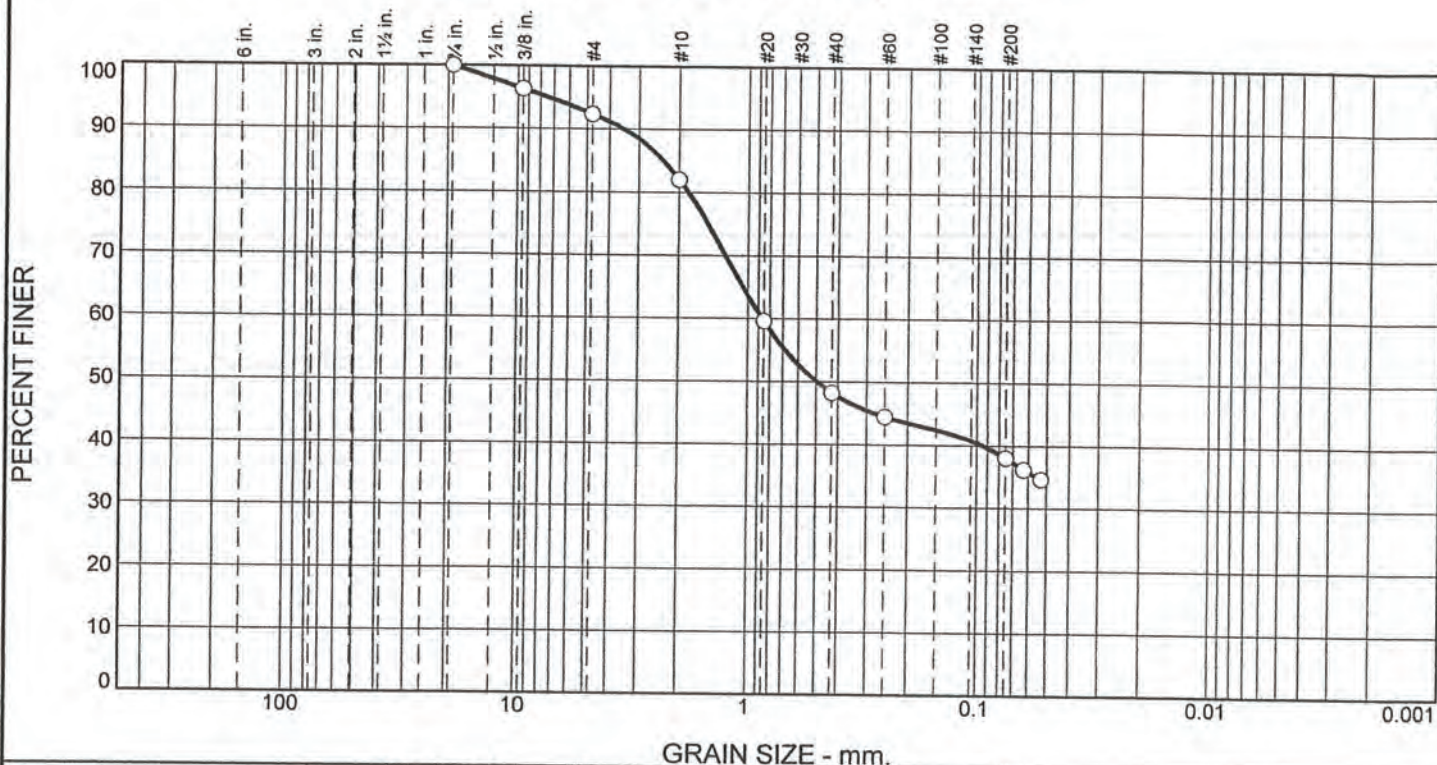
**Liquid Limit=** 43  
**Plastic Limit=** 33  
**Plasticity Index=** 10  
**Natural Moisture=** ND

### Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	13.26	13.02		
Dry+Tare	11.7	11.50		
Tare	6.94	6.92		
Moisture	32.8	33.2		



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.6	10.3	33.9	10.2	38.0	

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	96.3		
#4	92.4		
#10	82.1		
#20	59.6		
#40	48.2		
#60	44.5		
#200	38.0		
#230	36.2		
#270	34.7		

\* (no specification provided)

**Material Description**

Grayish Brown Organic SILT with Sand

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= OH (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 3.4679              D<sub>85</sub>= 2.3349              D<sub>60</sub>= 0.8649  
D<sub>50</sub>= 0.4956              D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Remarks**

ND = Not Determined    vis = visual  
Large amount of Barks, wood chips and Organic Materials  
Organic Contents = 45.6%

---

Date Received: 6/16/16              Date Tested: 7/14/16  
Tested By: CS  
Checked By: LBJ  
Title: Lab Manager

Source of Sample: Bu26H-060716-SED-G  
Sample Number: NA

Depth: Bulk

Date Sampled: 6/10/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure



## GRAIN SIZE DISTRIBUTION TEST DATA

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu26H-060716-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Grayish Brown Organic SILT with Sand

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** OH (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not Determined vis = visual

Large amount of Barks, wood chips and Organic Materials

Organic Contents = 45.6%

**Tested By:** CS

**Test Date:** 7/14/16

**Checked By:** LBJ

**Title:** Lab Manager

### Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
51.69	0.00	0.00	3/4	0.00	100.0
			.375	1.89	96.3
			#4	3.93	92.4
			#10	9.27	82.1
			#20	20.89	59.6
			#40	26.75	48.2
			#60	28.71	44.5
			#200	32.03	38.0
			#230	32.97	36.2
			#270	33.77	34.7

### Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	7.6	7.6	10.3	33.9	10.2	54.4			38.0

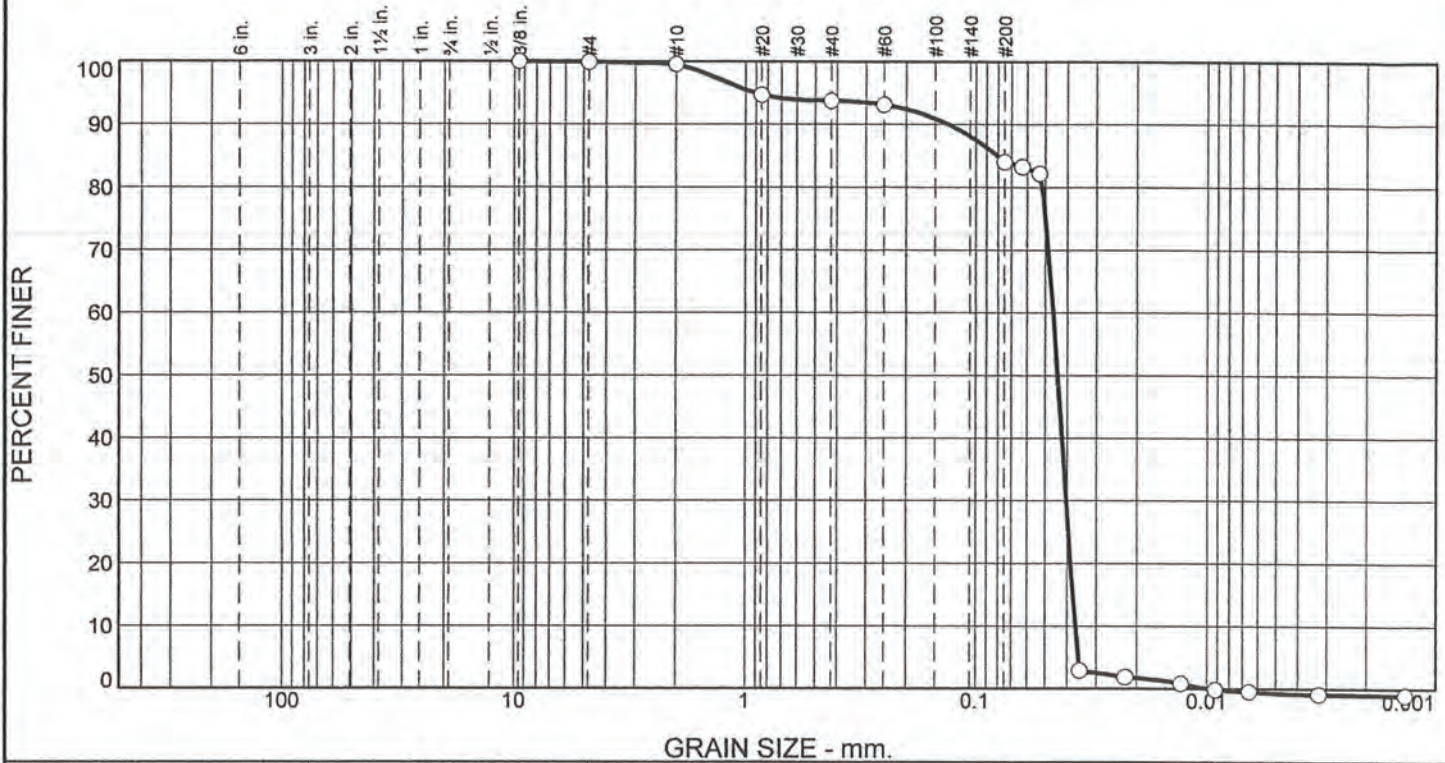
D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
					0.0945	0.4956	0.8649	1.8242	2.3349	3.4679	7.3942

**Fineness Modulus**

2.17



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	5.8	9.7	84.1	

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	99.9		
#10	99.6		
#20	94.7		
#40	93.8		
#60	93.2		
#200	84.1		
#230	83.3		
#270	82.2		
0.0354 mm.	2.9		
0.0224 mm.	1.9		
0.0130 mm.	0.9		
0.0092 mm.			
0.0066 mm.			
0.0032 mm.			
0.0014 mm.			

\* (no specification provided)

**Material Description**

Brownish Green Sandy SILT with some organic materials

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 0.1315	D <sub>85</sub> = 0.0805	D <sub>60</sub> = 0.0460
D <sub>50</sub> = 0.0440	D <sub>30</sub> = 0.0405	D <sub>15</sub> = 0.0379
D <sub>10</sub> = 0.0369	C <sub>u</sub> = 1.25	C <sub>c</sub> = 0.97

**Remarks**

ND = Not determined    vis = visual  
 Organic Content = 3.9%  
 Sieve #4 = Barks, Sieve #(10, 20) = Woods

---

**Date Received:** 6/16/16                      **Date Tested:** 7/1/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** Bu28H-060716-SED-G                      **Depth:** Jar                      **Date Sampled:** 6/07/16  
**Sample Number:** NA



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/13/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu28H-060716-SED-G

**Depth:** Jar

**Sample Number:** NA

**Material Description:** Brownish Green Sandy SILT with some organic materials

**Sample Date:** 6/07/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** ML (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63907)E2014

**Testing Remarks:** ND = Not determined vis = visual

Organic Content = 3.9%

Sieve #4 = Barks, Sieve #(10, 20) = Woods

**Tested By:** CS

**Test Date:** 7/1/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
195.37	0.00	0.00	.375	0.00	100.0
			#4	0.15	99.9
			#10	0.79	99.6
44.84	0.00	0.00	#20	2.19	94.7
			#40	2.61	93.8
			#60	2.89	93.2
			#200	6.99	84.1
			#230	7.34	83.3
			#270	7.82	82.2

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 84.1

Weight of hydrometer sample = 44.84

Hygroscopic moisture correction:

Moist weight and tare = 28.99

Dry weight and tare = 27.85

Tare weight = 15.75

Hygroscopic moisture = 9.4%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.8	8.0	1.4	0.0130	9.0	14.8	0.0354	2.9
5.00	22.8	7.5	0.9	0.0130	8.5	14.9	0.0224	1.9
15.00	22.8	7.0	0.4	0.0130	8.0	15.0	0.0130	0.9
30.00	22.8	6.5	-0.1	0.0130	7.5	15.1	0.0092	-0.2
60.00	22.2	6.5	-0.2	0.0131	7.5	15.1	0.0066	-0.5
250.00	21.4	6.5	-0.4	0.0132	7.5	15.1	0.0032	-0.9
1440.00	21.1	6.5	-0.5	0.0133	7.5	15.1	0.0014	-1.0



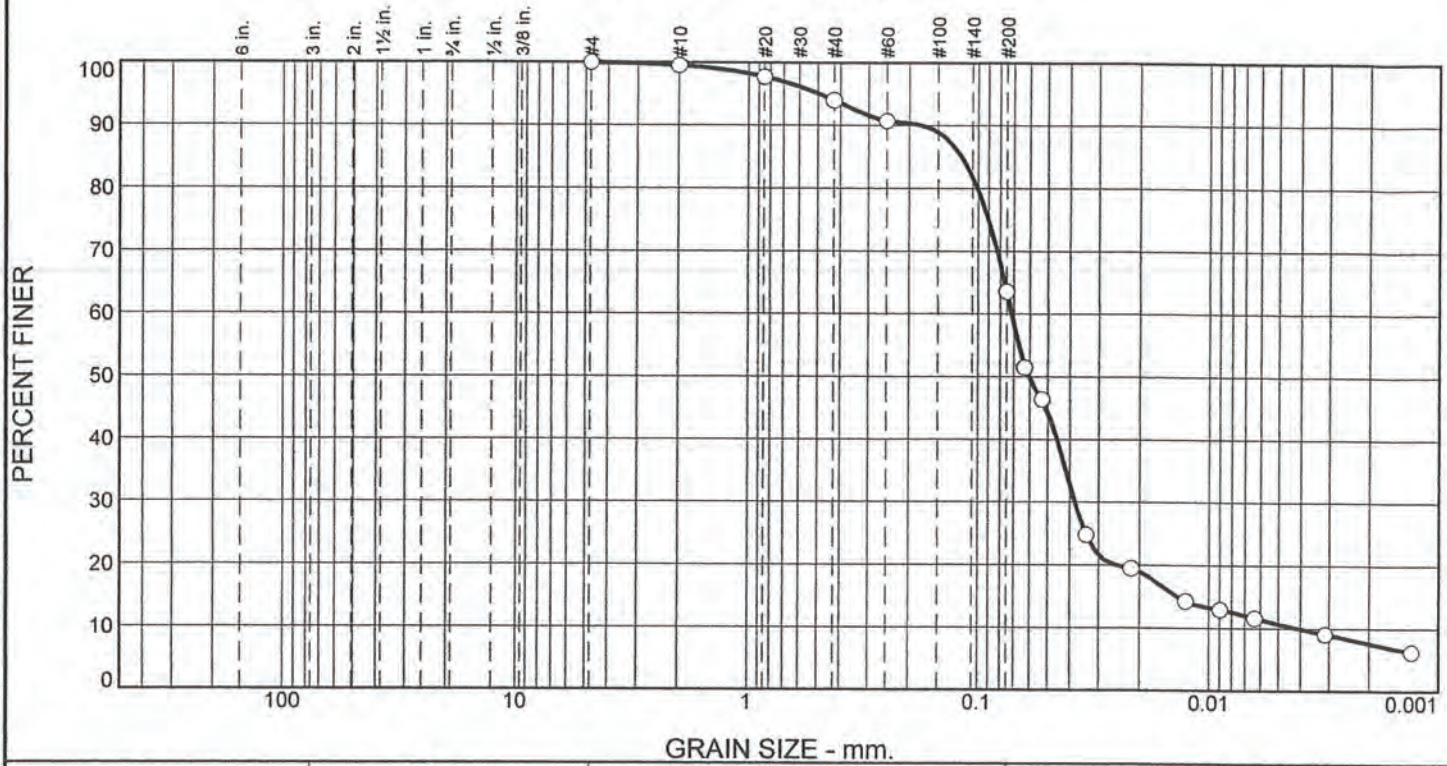
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.1	0.1	0.3	5.8	9.7	15.8			84.1

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0358	0.0369	0.0379	0.0388	0.0405	0.0422	0.0440	0.0460	0.0518	0.0805	0.1315	0.9037

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.25	1.25	0.97

# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	5.5	30.4	56.0	7.6

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.5		
#20	97.7		
#40	94.0		
#60	90.8		
#200	63.6		
#230	51.5		
#270	46.4		
0.0339 mm.	24.8		
0.0217 mm.	19.5		
0.0127 mm.	14.3		
0.0090 mm.	12.9		
0.0064 mm.	11.6		
0.0031 mm.	9.1		
0.0013 mm.	6.2		

\* (no specification provided)

**Material Description**

Grayish Brown Elastic SILT with Sand and Organic materials

**Atterberg Limits (ASTM D 4318)**

PL= 37                      LL= 50                      PI= 13

**Classification**

USCS (D 2487)= MH                      AASHTO (M 145)= A-7-5(9)

**Coefficients**

D<sub>90</sub>= 0.1758                      D<sub>85</sub>= 0.1182                      D<sub>60</sub>= 0.0715  
D<sub>50</sub>= 0.0608                      D<sub>30</sub>= 0.0380                      D<sub>15</sub>= 0.0138  
D<sub>10</sub>= 0.0041                      C<sub>u</sub>= 17.35                      C<sub>c</sub>= 4.89

**Remarks**

Specific Gravity is assumed  
Organic Contents = 13.6%  
Bark and peat retained on #20,40,& 60 sieves

---

Date Received: 6/16/16                      Date Tested: 7/16/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: Bu29F-060716-SED-G  
Sample Number: NA

Depth: Bulk

Date Sampled: 6/10/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu29F-060716-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Grayish Brown Elastic SILT with Sand and Organic materials

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** 37

**LL:** 50

**PI:** 13

**USCS Classification:** MH

**AASHTO Classification:** A-7-5(9)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** Specific Gravity is assumed

Organic Contents = 13.6%

Bark and peat retained on #20,40,& 60 sieves

**Tested By:** CS

**Test Date:** 7/16/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
113.06	0.00	0.00	#4	0.00	100.0
			#10	0.54	99.5
25.09	0.00	0.00	#20	0.45	97.7
			#40	1.38	94.0
			#60	2.21	90.8
			#200	9.06	63.6
			#230	12.11	51.5
			#270	13.39	46.4

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 63.6

Weight of hydrometer sample = 25.09

Hygroscopic moisture correction:

Moist weight and tare = 22.31

Dry weight and tare = 21.95

Tare weight = 15.79

Hygroscopic moisture = 5.8%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.5	16.0	9.3	0.0130	17.0	13.5	0.0339	24.8
5.00	22.5	14.0	7.3	0.0130	15.0	13.8	0.0217	19.5
15.00	22.6	12.0	5.4	0.0130	13.0	14.2	0.0127	14.3
30.00	22.6	11.5	4.9	0.0130	12.5	14.2	0.0090	12.9
60.00	22.6	11.0	4.4	0.0130	12.0	14.3	0.0064	11.6
250.00	22.8	10.0	3.4	0.0130	11.0	14.5	0.0031	9.1
1440.00	22.5	9.0	2.3	0.0130	10.0	14.7	0.0013	6.2



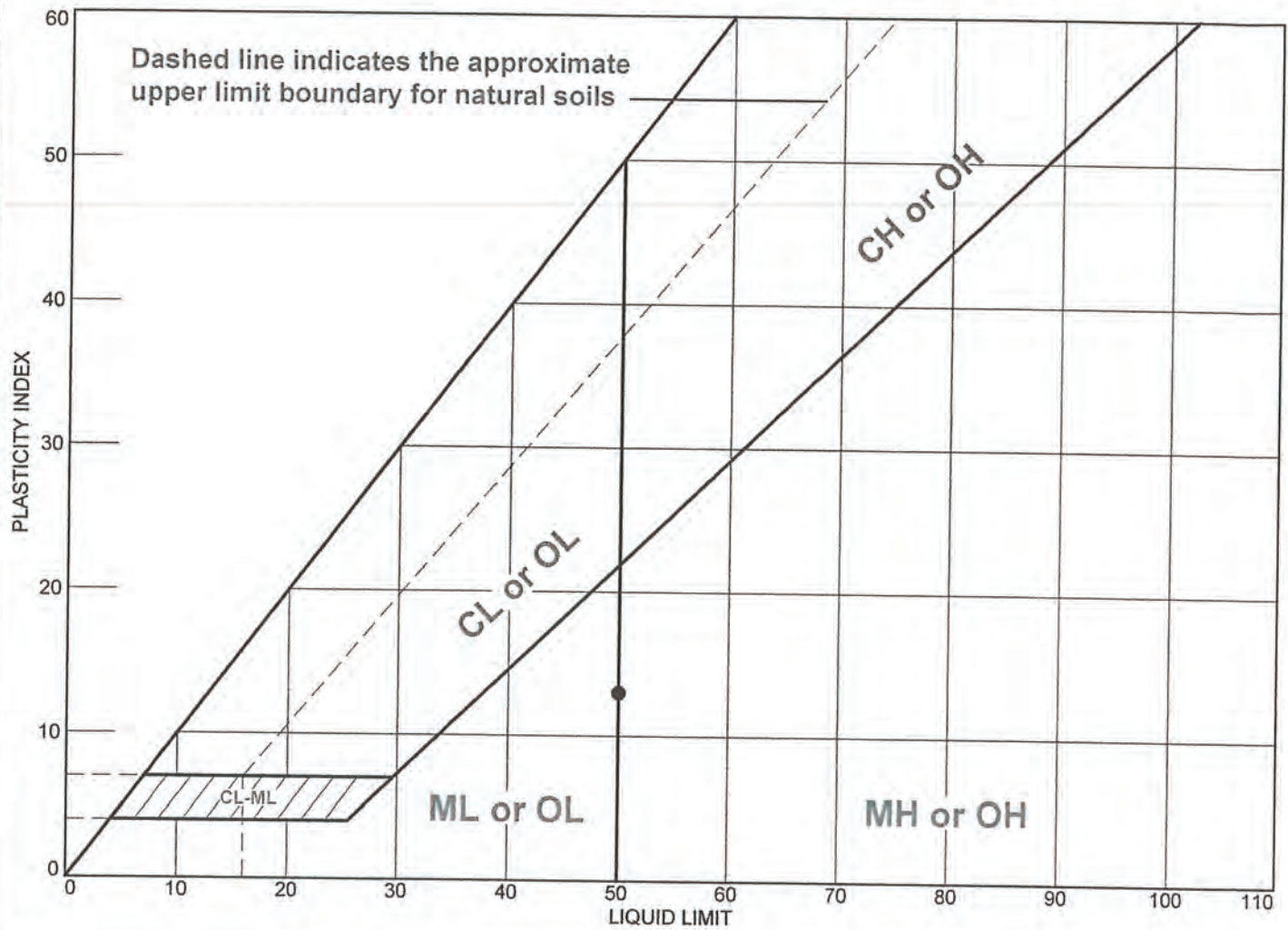
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.5	5.5	30.4	36.4	56.0	7.6	63.6

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0041	0.0138	0.0253	0.0380	0.0456	0.0608	0.0715	0.1009	0.1182	0.1758	0.4897

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.25	17.35	4.89

# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318



	Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
○	Grayish Brown Elastic SILT with Sand and Organic materials	6/10/16	7/16/16	CS	50	37	13	94.0	MH

**Project No.** 3616166052.04 **Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

○ **Source of Sample:** Bu29F-060716-SED-G      **Depth:** Bulk      **Sample Number:** NA

○ ND = Not determined



**Checked by:** LBJ

**Title:** Lab Manager

**Figure**

**Tested By:** CS

**Checked By:** LBJ



## LIQUID AND PLASTIC LIMIT TEST DATA

7/25/2016

**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Project Number:** 3616166052.04.03  
**Location:** Bu29F-060716-SED-G

**Depth:** Bulk **Sample Number:** NA  
**Material Description:** Grayish Brown Elastic SILT with Sand and Organic materials  
**Sample Date:** 6/10/16 **%<#40:** 94.0  
**USCS:** MH **AASHTO:** A-7-5(9)

**Testing Remarks:** ND = Not determined

**Tested by:** CS

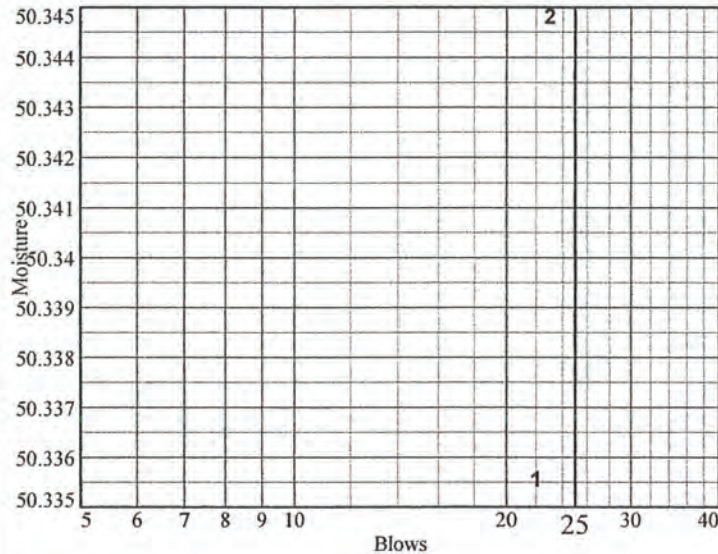
**Test Date:** 7/16/16

**Checked by:** LBJ

**Title:** Lab Manager

### Liquid Limit Data

Run No.	1	2	3	4	5	6
<b>Wet+Tare</b>	22.34	26.39				
<b>Dry+Tare</b>	19.34	22.01				
<b>Tare</b>	13.38	13.31				
<b># Blows</b>	22	23				
<b>Moisture</b>	50.3	50.3				



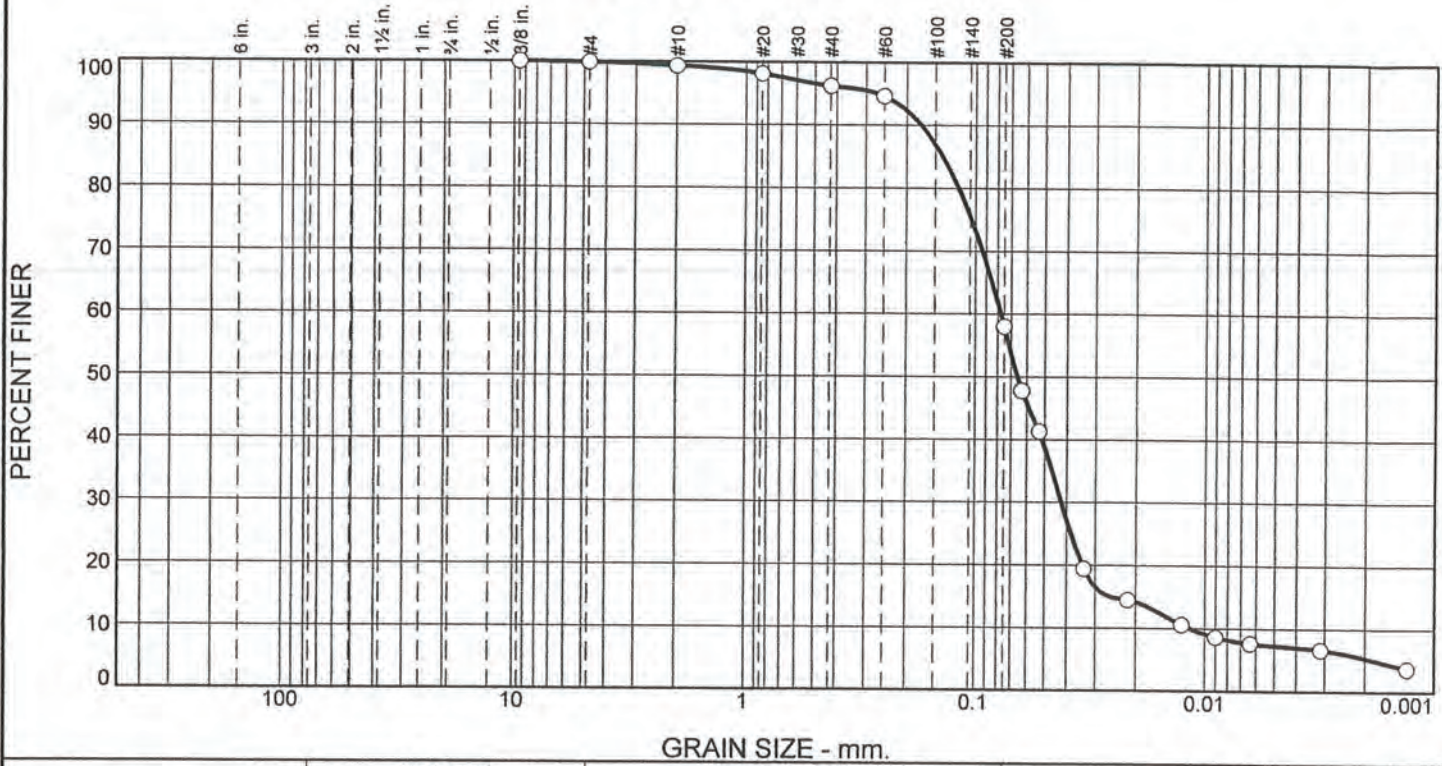
**Liquid Limit=** 50  
**Plastic Limit=** 37  
**Plasticity Index=** 13  
**Natural Moisture=** ND

### Plastic Limit Data

Run No.	1	2	3	4
<b>Wet+Tare</b>	24.11	21.47		
<b>Dry+Tare</b>	21.79	19.84		
<b>Tare</b>	15.51	15.51		
<b>Moisture</b>	36.9	37.6		



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	3.2	38.2	52.6	5.4

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.2		
#40	96.2		
#60	94.6		
#200	58.0		
#230	47.8		
#270	41.3		
0.0337 mm.	19.4		
0.0217 mm.	14.5		
0.0127 mm.	10.6		
0.0090 mm.	8.6		
0.0064 mm.	7.6		
0.0031 mm.	6.7		
0.0013 mm.	3.7		

\* (no specification provided)

**Material Description**

Grayish Brown Sandy SILT

**Atterberg Limits (ASTM D 4318)**

PL= 34                      LL= 39                      PI= 5

**Classification**

USCS (D 2487)= ML                      AASHTO (M 145)= A-4(2)

**Coefficients**

D <sub>90</sub> = 0.1727	D <sub>85</sub> = 0.1392	D <sub>60</sub> = 0.0775
D <sub>50</sub> = 0.0658	D <sub>30</sub> = 0.0422	D <sub>15</sub> = 0.0260
D <sub>10</sub> = 0.0117	C <sub>u</sub> = 6.63	C <sub>c</sub> = 1.97

**Remarks**

Specific Gravity is assumed  
Organic Contents = 8.7%  
# 4 contains bark, #10 thru. #40 contain Barks & Sand

---

**Date Received:** 6/16/16                      **Date Tested:** 7/16/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** Bu30F-060716-SED-G  
**Sample Number:** NA

**Depth:** Bulk

**Date Sampled:** 6/10/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu30F-060716-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Grayish Brown Sandy SILT

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** 34

**LL:** 39

**PI:** 5

**USCS Classification:** ML

**AASHTO Classification:** A-4(2)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** Specific Gravity is assumed

Organic Contents = 8.7%

# 4 contains bark, #10 thru. #40 contain Barks & Sand

#60 is Peats & Sand.

**Tested By:** CS

**Test Date:** 7/16/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
131.83	0.00	0.00	.375	0.00	100.0
			#4	0.14	99.9
			#10	0.84	99.4
30.53	0.00	0.00	#20	0.37	98.2
			#40	0.96	96.2
			#60	1.45	94.6
			#200	12.71	58.0
			#230	15.85	47.8
			#270	17.84	41.3

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 58.0

Weight of hydrometer sample = 30.53

Hygroscopic moisture correction:

Moist weight and tare = 24.77

Dry weight and tare = 24.36

Tare weight = 15.52

Hygroscopic moisture = 4.6%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.6	16.5	9.9	0.0130	17.5	13.4	0.0337	19.4
5.00	22.6	14.0	7.4	0.0130	15.0	13.8	0.0217	14.5
15.00	22.6	12.0	5.4	0.0130	13.0	14.2	0.0127	10.6
30.00	22.6	11.0	4.4	0.0130	12.0	14.3	0.0090	8.6
60.00	22.6	10.5	3.9	0.0130	11.5	14.4	0.0064	7.6
250.00	22.7	10.0	3.4	0.0130	11.0	14.5	0.0031	6.7



**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
1440.00	22.6	8.5	1.9	0.0130	9.5	14.7	0.0013	3.7

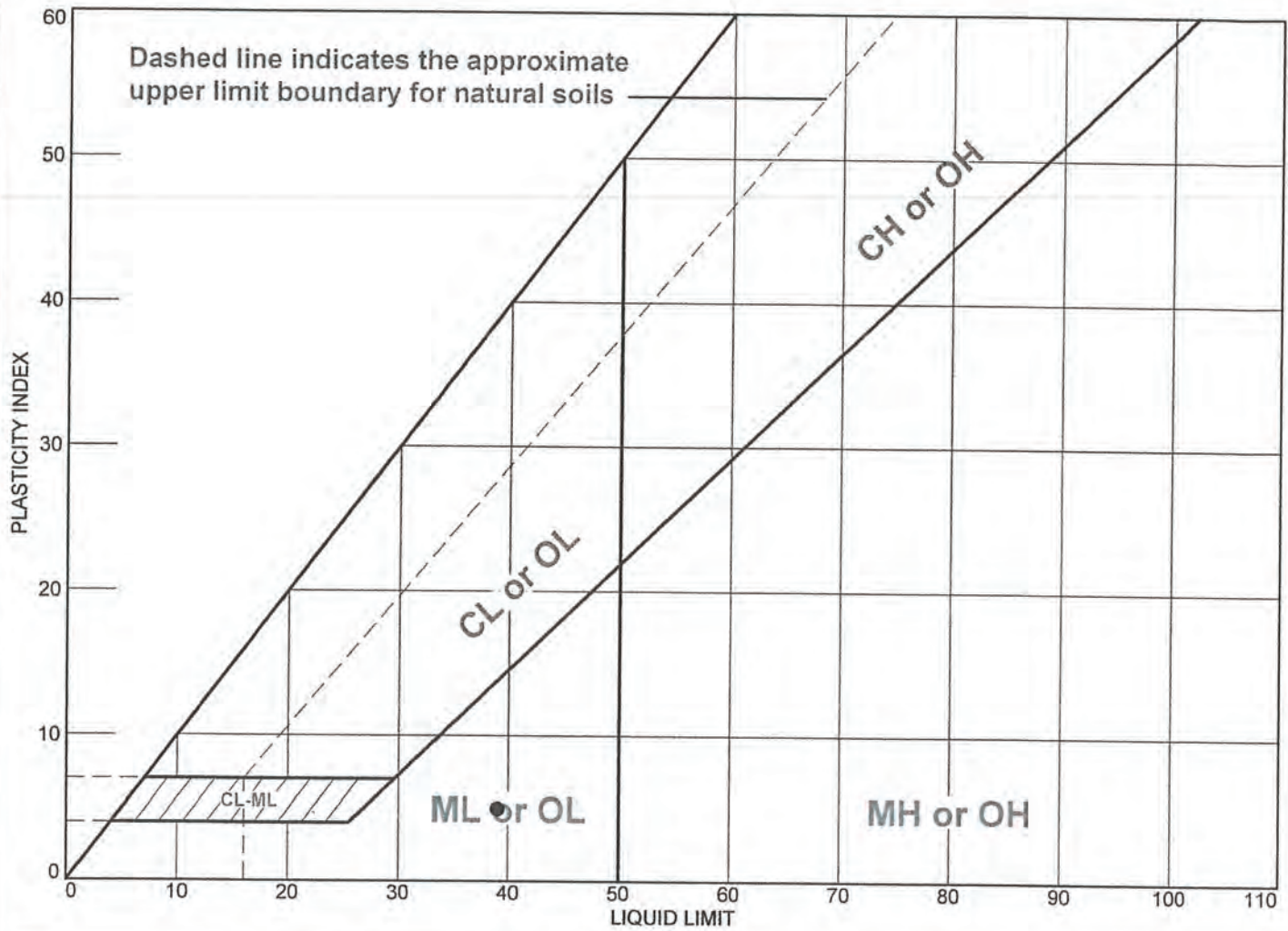
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.1	0.1	0.5	3.2	38.2	41.9	52.6	5.4	58.0

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0018	0.0117	0.0260	0.0343	0.0422	0.0514	0.0658	0.0775	0.1187	0.1392	0.1727	0.2645

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.22	6.63	1.97

# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318



Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
Grayish Brown Sandy SILT	6/10/16	7/16/16	CS	39	34	5	96.2	ML

Project No. 3616166052.04. Client: US District Court, District of Maine

Project: Penobscot River Phase III Engineering Evaluation

Source of Sample: Bu30F-060716-SED-G      Depth: Bulk      Sample Number: NA

○ ND = Not Determined



Checked by: LBJ

Title: Lab Manager

Figure

Tested By: CS

Checked By: LBJ



## LIQUID AND PLASTIC LIMIT TEST DATA

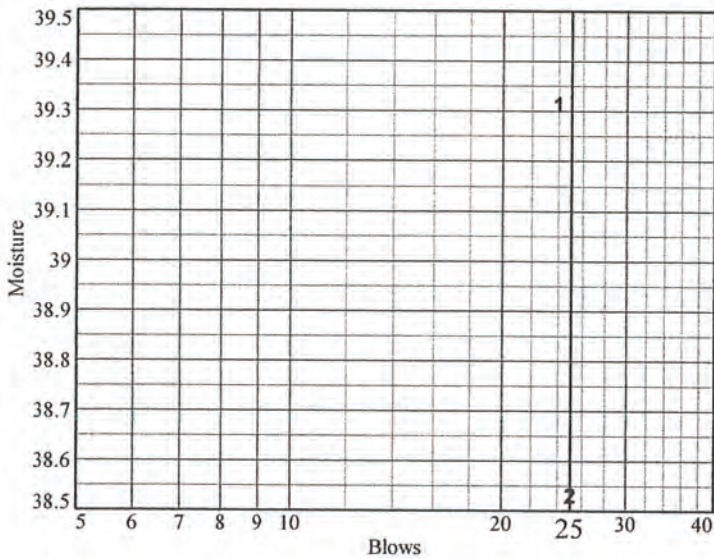
7/25/2016

**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Project Number:** 3616166052.04.03  
**Location:** Bu30F-060716-SED-G  
**Depth:** Bulk  
**Material Description:** Grayish Brown Sandy SILT  
**Sample Date:** 6/10/16  
**USCS:** ML  
**Testing Remarks:** ND = Not Determined  
**Tested by:** CS                      **Test Date:** 7/16/16

**Sample Number:** NA  
**%<#40:** 96.2  
**AASHTO:** A-4(2)  
**Checked by:** LBJ                      **Title:** Lab Manager

### Liquid Limit Data

Run No.	1	2	3	4	5	6
<b>Wet+Tare</b>	23.67	25.73				
<b>Dry+Tare</b>	20.69	22.37				
<b>Tare</b>	13.11	13.65				
<b># Blows</b>	24	25				
<b>Moisture</b>	39.3	38.5				



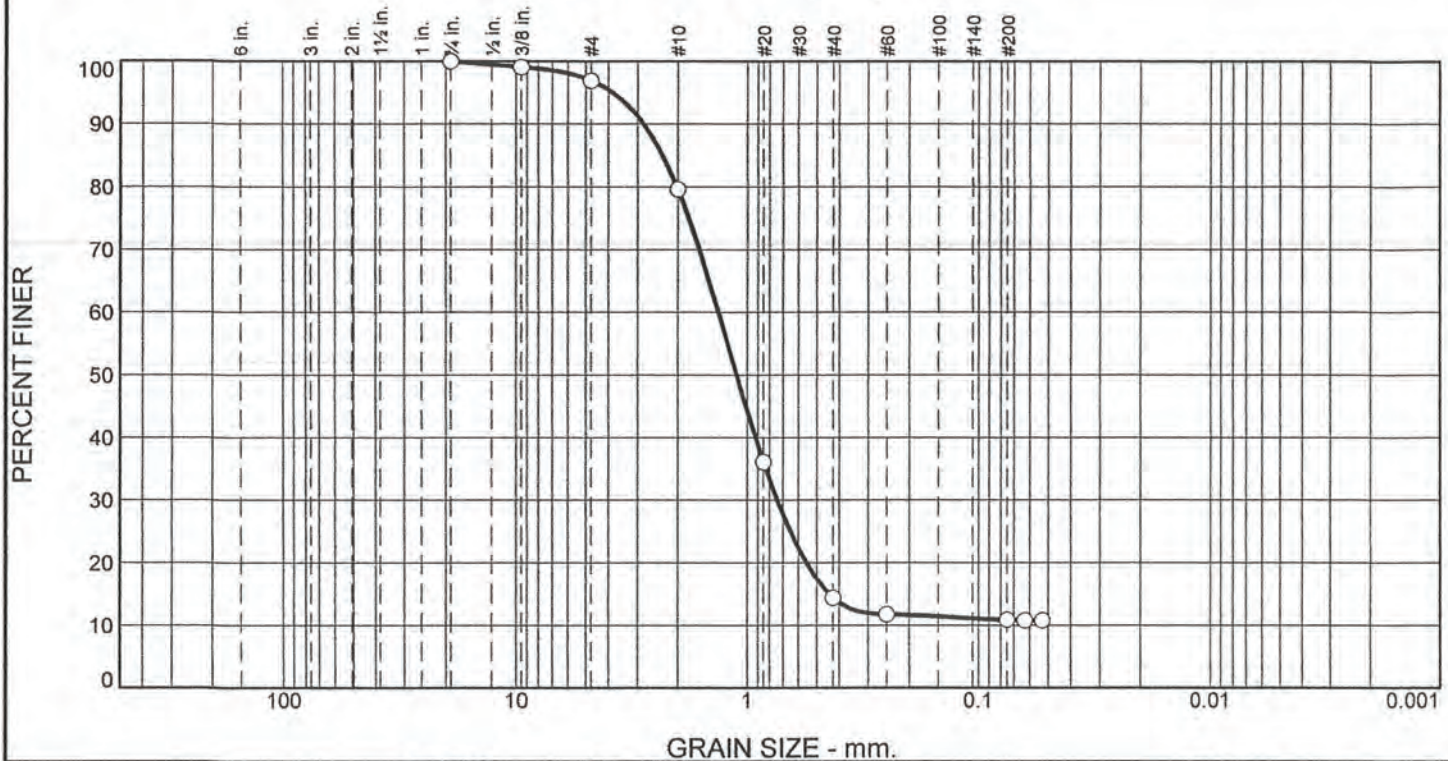
**Liquid Limit=** 39  
**Plastic Limit=** 34  
**Plasticity Index=** 5  
**Natural Moisture=** ND

### Plastic Limit Data

Run No.	1	2	3	4
<b>Wet+Tare</b>	22.95	30.39		
<b>Dry+Tare</b>	20.50	28.03		
<b>Tare</b>	13.36	21.18		
<b>Moisture</b>	34.3	34.5		



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.1	17.3	65.2	3.5	10.9	

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	99.1		
#4	96.9		
#10	79.6		
#20	36.1		
#40	14.4		
#60	11.8		
#200	10.9		
#230	10.8		
#270	10.8		

\* (no specification provided)

**Material Description**

Brownish Black Organic Silt with Sand, Bark, Wood Chips & Peats, Sample was approximately 90% bark and organics which is reflected as sand on grainsize report.

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= OL (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 2.8118	D <sub>85</sub> = 2.3273	D <sub>60</sub> = 1.3357
D <sub>50</sub> = 1.1127	D <sub>30</sub> = 0.7408	D <sub>15</sub> = 0.4423
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =

**Remarks**

Organic Contents = 30.2%  
 ND = Not determined    vis = vial  
 Bark & wood Chips retain on Sieve #(3/8,4,10,20 & 40)

---

**Date Received:** 6/16/16                      **Date Tested:** 7/1/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** Bu31F-060916-SED-G  
**Sample Number:** NA

**Depth:** Jar

**Date Sampled:** 6/09/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



## GRAIN SIZE DISTRIBUTION TEST DATA

7/13/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu31F-060916-SED-G

**Depth:** Jar

**Sample Number:** NA

**Material Description:** Brownish Black Organic Silt with Sand, Bark, Wood Chips & Peats

Sample was approximately 90% bark and organics which is reflected as sand on grainsize report.

**Sample Date:** 6/09/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** OL (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** Organic Contents = 30.2%

ND = Not determined vis = visual

Bark & wood Chips retain on Sieve #(3/8,4,10,20 & 40)

Peats retain on Sieve #(60,200,230 & 270)

**Tested By:** CS

**Test Date:** 7/1/16

**Checked By:** LBJ

**Title:** Lab Manager

### Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
26.68	0.00	0.00	3/4	0.00	100.0
			.375	0.24	99.1
			#4	0.82	96.9
			#10	5.43	79.6
			#20	17.05	36.1
			#40	22.84	14.4
			#60	23.54	11.8
			#200	23.78	10.9
			#230	23.80	10.8
			#270	23.81	10.8

### Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.1	3.1	17.3	65.2	3.5	86.0			10.9

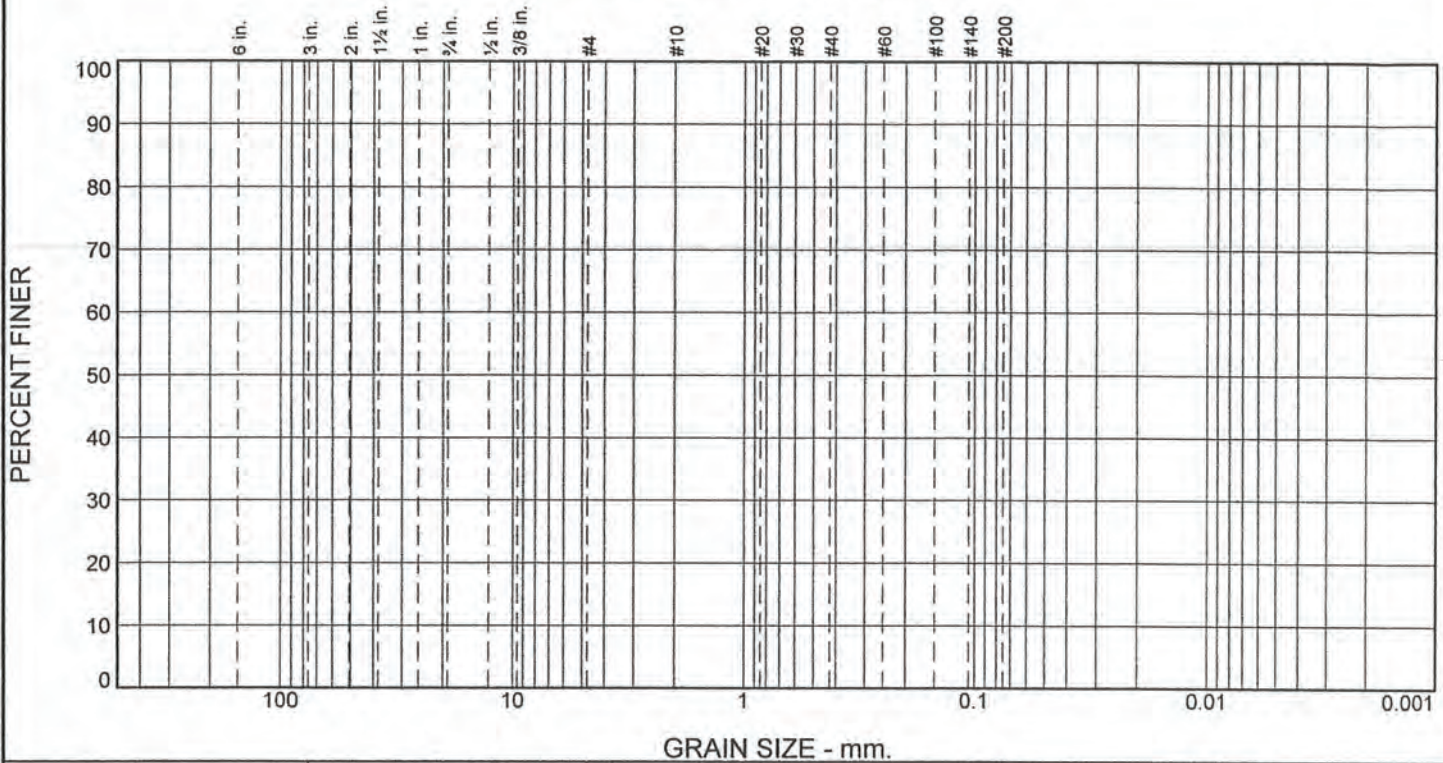
D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
		0.4423	0.5549	0.7408	0.9207	1.1127	1.3357	2.0179	2.3273	2.8118	3.8205

**Fineness Modulus**

3.20



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

TEST RESULTS			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)

\* (no specification provided)

**Material Description**

Greenish Gray Sandy SILT

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>=                      D<sub>85</sub>=                      D<sub>60</sub>=  
D<sub>50</sub>=                      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Remarks**

ND = Not determined    vis = visual  
Insufficient Samples to run grain size test  
Organic Contents = 19.4%

---

**Date Received:** 6/16/16                      **Date Tested:** 7/1/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** Bu32F-060716-SED-G  
**Sample Number:** NA

**Depth:** Jar

**Date Sampled:** 6/10/16



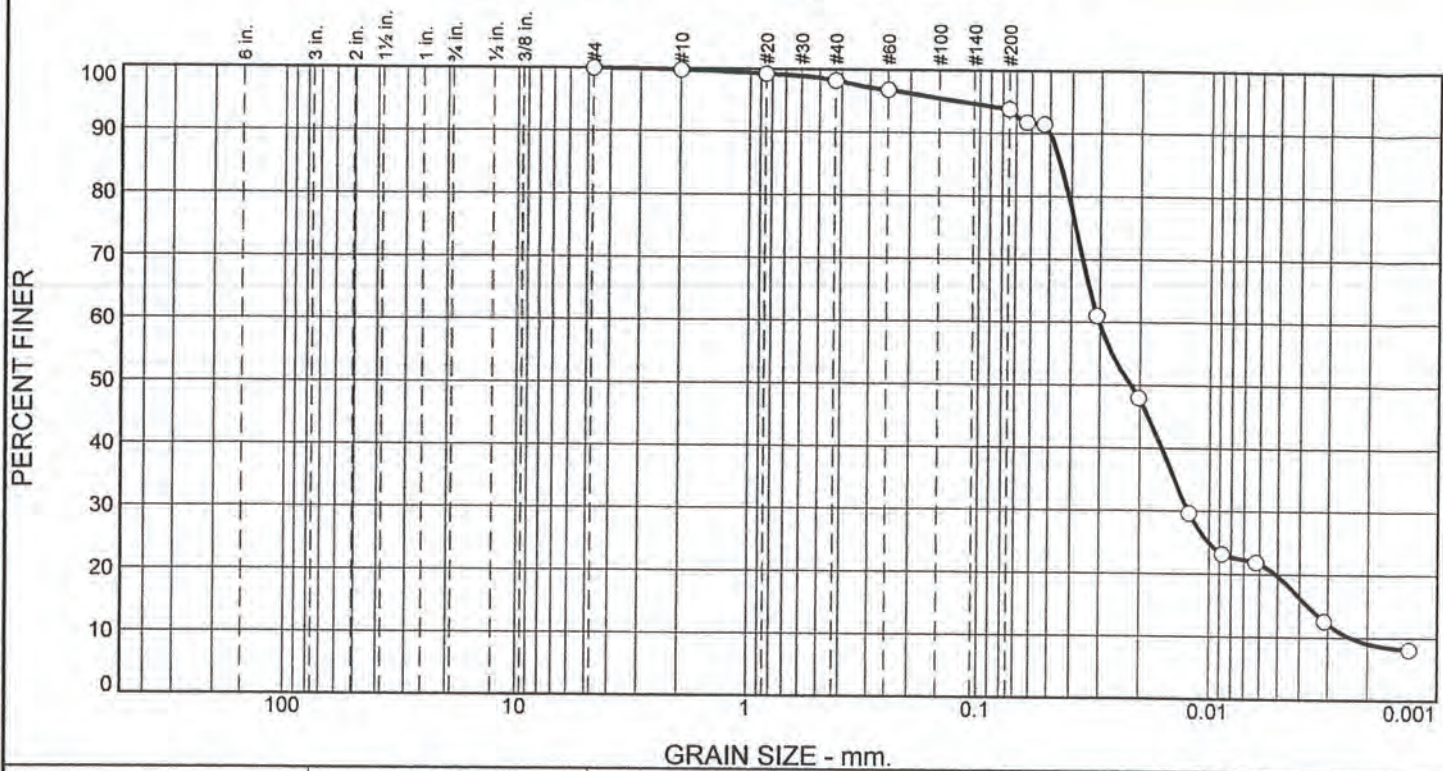
**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.6	4.3	84.8	9.1

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.8		
#20	99.2		
#40	98.2		
#60	96.8		
#200	93.9		
#230	91.8		
#270	91.5		
0.0309 mm.	61.1		
0.0203 mm.	48.0		
0.0122 mm.	29.7		
0.0088 mm.	23.2		
0.0062 mm.	21.9		
0.0031 mm.	12.6		
0.0013 mm.	8.1		

\* (no specification provided)

**Material Description**

Black Sandy SILT with Organic Materials

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 0.0498	D <sub>85</sub> = 0.0447	D <sub>60</sub> = 0.0303
D <sub>50</sub> = 0.0219	D <sub>30</sub> = 0.0124	D <sub>15</sub> = 0.0037
D <sub>10</sub> = 0.0024	C <sub>u</sub> = 12.70	C <sub>c</sub> = 2.11

**Remarks**

ND = Not determined    vis = visual  
Organic Contents = 11.3%

---

**Date Received:** 6/16/16      **Date Tested:** 7/1/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** EC37ABCDE-060916-SED-G  
**Sample Number:** NA

**Depth:** Jar

**Date Sampled:** 6/09/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**







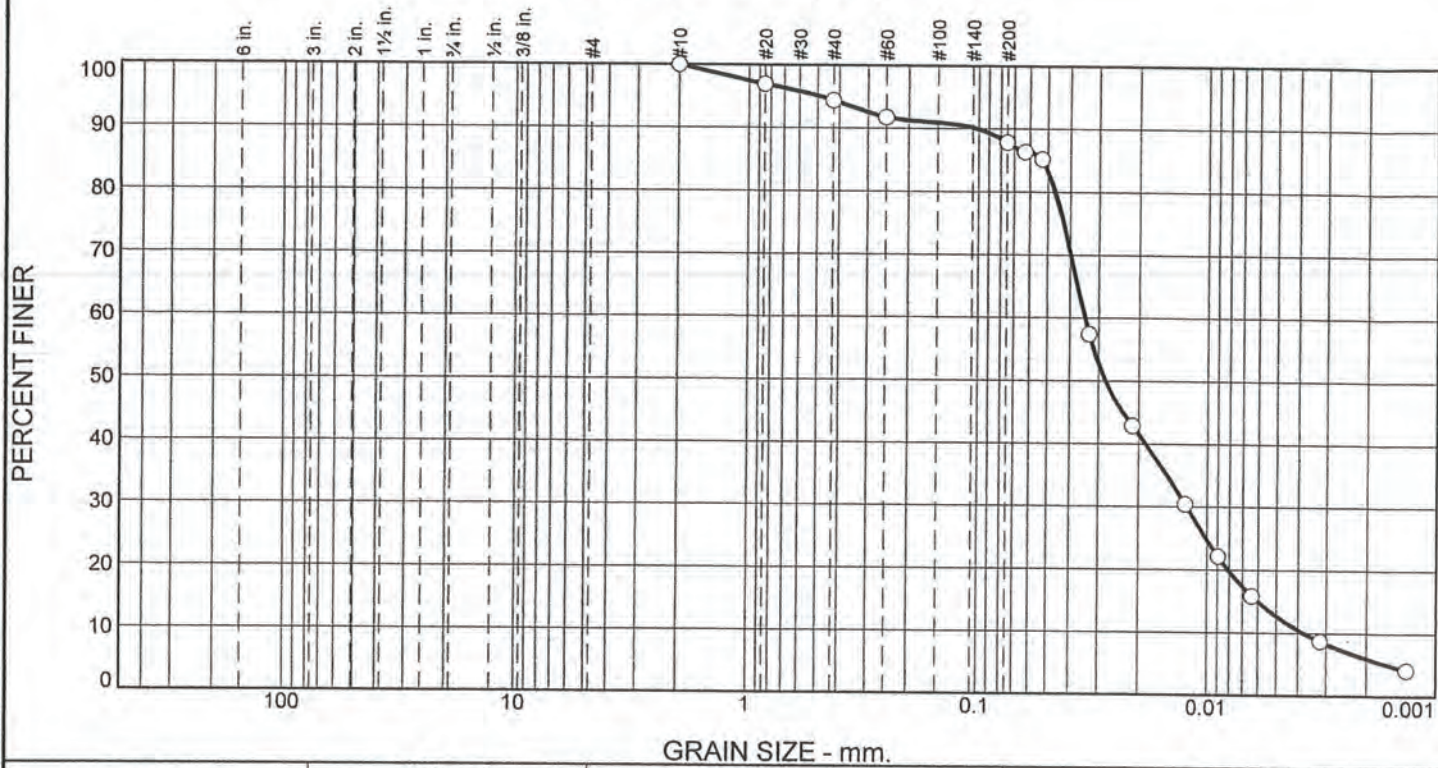
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	1.6	4.3	6.1	84.8	9.1	93.9

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0024	0.0037	0.0051	0.0124	0.0162	0.0219	0.0303	0.0412	0.0447	0.0498	0.1205

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.09	12.70	2.11

# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.6	6.6	81.8	6.0

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#10	100.0		
#20	96.9		
#40	94.4		
#60	91.8		
#200	87.8		
#230	86.3		
#270	85.2		
0.0330 mm.	57.5		
0.0213 mm.	42.9		
0.0125 mm.	30.4		
0.0090 mm.	22.1		
0.0064 mm.	15.9		
0.0032 mm.	8.7		
0.0013 mm.	4.2		

\* (no specification provided)

**Material Description**

Greenish Brown Sandy SILT

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 0.1012              D<sub>85</sub>= 0.0525              D<sub>60</sub>= 0.0344  
D<sub>50</sub>= 0.0280              D<sub>30</sub>= 0.0123              D<sub>15</sub>= 0.0060  
D<sub>10</sub>= 0.0038              C<sub>u</sub>= 9.09                      C<sub>c</sub>= 1.17

**Remarks**

ND = Not Determined    vis = visual  
Specific Gravity is assumed  
Organic Content = 11.3%

---

Date Received: 6/16/16              Date Tested: 6/17/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: EC38ABCDE-060916-SED-C  
Sample Number: NA

Depth: NA

Date Sampled: 6/10/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure



## GRAIN SIZE DISTRIBUTION TEST DATA

7/13/2016

Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Project Number: 3616166052.04.03  
 Location: EC38ABCDE-060916-SED-C

Depth: NA Sample Number: NA

Material Description: Greenish Brown Sandy SILT

Sample Date: 6/10/16

Date Received: 6/16/16 PL: ND LL: ND PI: ND

USCS Classification: ML (vis) AASHTO Classification: ND

Grain Size Test Method: ASTM D 422-63(07)E2014

Testing Remarks: ND = Not Determined vis = visual  
 Specific Gravity is assumed  
 Organic Content = 11.3%

Tested By: CS

Test Date: 6/17/16

Checked By: LBJ

Title: Lab Manager

### Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
94.77	0.00	0.00	#10	0.00	100.0
21.31	0.00	0.00	#20	0.65	96.9
			#40	1.19	94.4
			#60	1.75	91.8
			#200	2.59	87.8
			#230	2.91	86.3
			#270	3.15	85.2

### Hydrometer Test Data

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 87.8  
 Weight of hydrometer sample = 21.31

Hygroscopic moisture correction:

Moist weight and tare = 19.17

Dry weight and tare = 19.10

Tare weight = 15.50

Hygroscopic moisture = 1.9%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	20.5	13.8	0.0131	21.5	12.8	0.0330	57.5
5.00	22.4	17.0	10.3	0.0131	18.0	13.3	0.0213	42.9
15.00	22.4	14.0	7.3	0.0131	15.0	13.8	0.0125	30.4
30.00	22.4	12.0	5.3	0.0131	13.0	14.2	0.0090	22.1
60.00	22.4	10.5	3.8	0.0131	11.5	14.4	0.0064	15.9
250.00	21.5	9.0	2.1	0.0132	10.0	14.7	0.0032	8.7
1440.00	21.1	8.0	1.0	0.0133	9.0	14.8	0.0013	4.2

**Fractional Components**

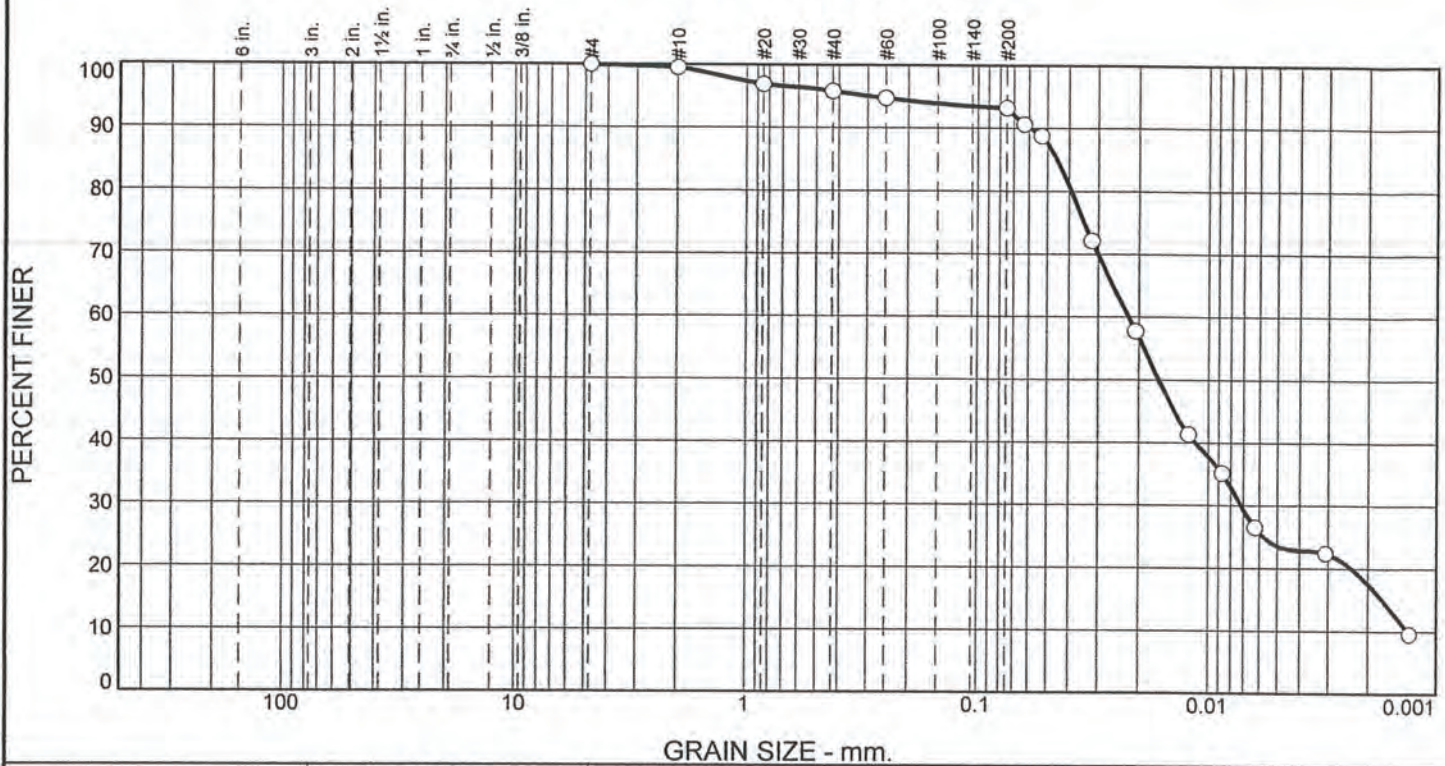
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	5.6	6.6	12.2	81.8	6.0	87.8

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0016	0.0038	0.0060	0.0081	0.0123	0.0187	0.0280	0.0344	0.0465	0.0525	0.1012	0.4830

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.23	9.09	1.17



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	3.6	2.7	75.7	17.5

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.5		
#20	96.9		
#40	95.9		
#60	94.7		
#200	93.2		
#230	90.6		
#270	88.8		
0.0319 mm.	72.2		
0.0206 mm.	57.8		
0.0122 mm.	41.3		
0.0087 mm.	35.2		
0.0063 mm.	26.5		
0.0031 mm.	22.4		
0.0013 mm.	9.6		

\* (no specification provided)

**Material Description**

Greenish Brown Elastic SILT with Sand and Organic contents

**Atterberg Limits (ASTM D 4318)**

PL= 57                      LL= 78                      PI= 21

**Classification**

USCS (D 2487)= MH                      AASHTO (M 145)= A-7-5(31)

**Coefficients**

D<sub>90</sub>= 0.0591                      D<sub>85</sub>= 0.0452                      D<sub>60</sub>= 0.0221  
D<sub>50</sub>= 0.0165                      D<sub>30</sub>= 0.0072                      D<sub>15</sub>= 0.0017  
D<sub>10</sub>= 0.0013                      C<sub>u</sub>= 16.41                      C<sub>c</sub>= 1.74

**Remarks**

Specific gravity is assumed  
Organic Content = 12%

---

Date Received: 6/16/16                      Date Tested: 6/16/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: EC39ABC-060916-SED-C  
Sample Number: NA

Depth: Bulk

Date Sampled: 6/10/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** EC39ABC-060916-SED-C

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Greenish Brown Elastic SILT with Sand and Organic contents

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** 57

**LL:** 78

**PI:** 21

**USCS Classification:** MH

**AASHTO Classification:** A-7-5(31)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** Specific gravity is assumed

Organic Content = 12%

**Tested By:** CS

**Test Date:** 6/16/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
99.93	0.00	0.00	#4	0.00	100.0
			#10	0.46	99.5
24.04	0.00	0.00	#20	0.63	96.9
			#40	0.89	95.9
			#60	1.16	94.7
			#200	1.52	93.2
			#230	2.15	90.6
			#270	2.60	88.8

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 93.2

Weight of hydrometer sample = 24.04

Hygrosopic moisture correction:

Moist weight and tare = 23.27

Dry weight and tare = 22.75

Tare weight = 15.52

Hygrosopic moisture = 7.2%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.3	24.0	17.6	0.0129	25.0	12.2	0.0319	72.2
5.00	23.3	20.5	14.1	0.0129	21.5	12.8	0.0206	57.8
15.00	23.3	16.5	10.1	0.0129	17.5	13.4	0.0122	41.3
30.00	23.3	15.0	8.6	0.0129	16.0	13.7	0.0087	35.2
60.00	22.9	13.0	6.4	0.0130	14.0	14.0	0.0063	26.5
250.00	22.9	12.0	5.4	0.0130	13.0	14.2	0.0031	22.4
1440.00	22.4	9.0	2.3	0.0131	10.0	14.7	0.0013	9.6



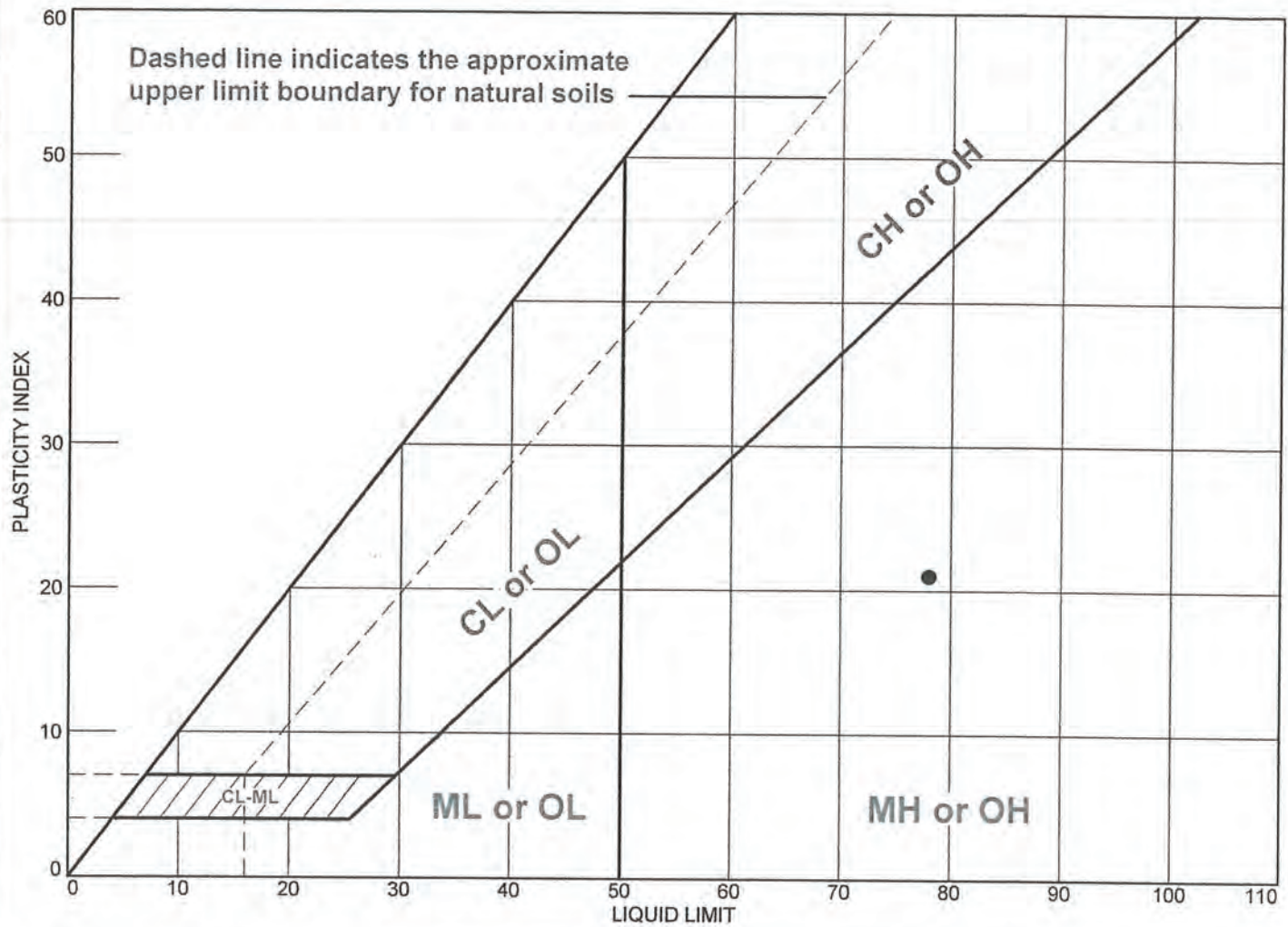
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.5	3.6	2.7	6.8	75.7	17.5	93.2

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0013	0.0017	0.0024	0.0072	0.0114	0.0165	0.0221	0.0391	0.0452	0.0591	0.2870

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.17	16.41	1.74

# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318



	Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
○	Greenish Brown Elastic SILT with Sand and Organic contents	6/10/16	6/16/16	CS	78	57	21	95.9	MH

**Project No.** 3616166052.04 **Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Source of Sample:** EC39ABC-060916-SED-C **Depth:** Bulk **Sample Number:** NA

○ND = Not Determined  
  
**Checked by:** LBJ  
**Title:** Lab Manager  
**Figure**



Tested By: CS

Checked By: LBJ



## LIQUID AND PLASTIC LIMIT TEST DATA

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** EC39ABC-060916-SED-C

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Greenish Brown Elastic SILT with Sand and Organic contents

**Sample Date:** 6/10/16

**%<#40:** 95.9

**USCS:** MH

**AASHTO:** A-7-5(31)

**Testing Remarks:** ND = Not Determined

**Tested by:** CS

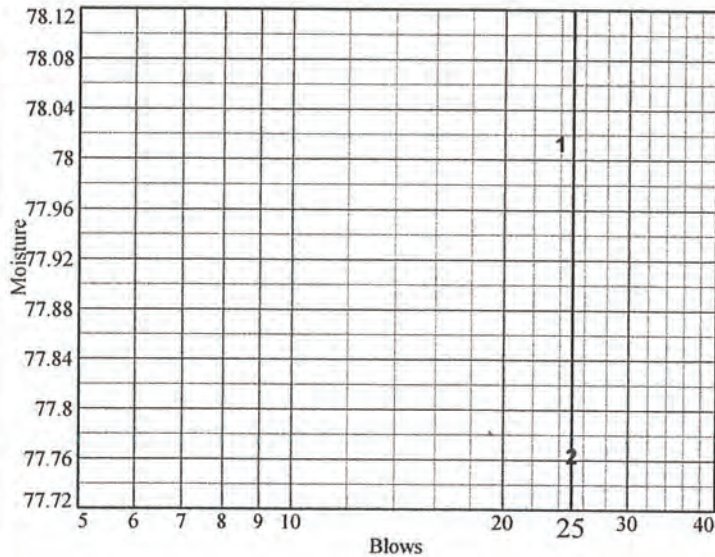
**Test Date:** 6/16/16

**Checked by:** LBJ

**Title:** Lab Manager

### Liquid Limit Data

Run No.	1	2	3	4	5	6
<b>Wet+Tare</b>	28.89	29.72				
<b>Dry+Tare</b>	23.00	23.6				
<b>Tare</b>	15.45	15.73				
<b># Blows</b>	24	25				
<b>Moisture</b>	78.0	77.8				

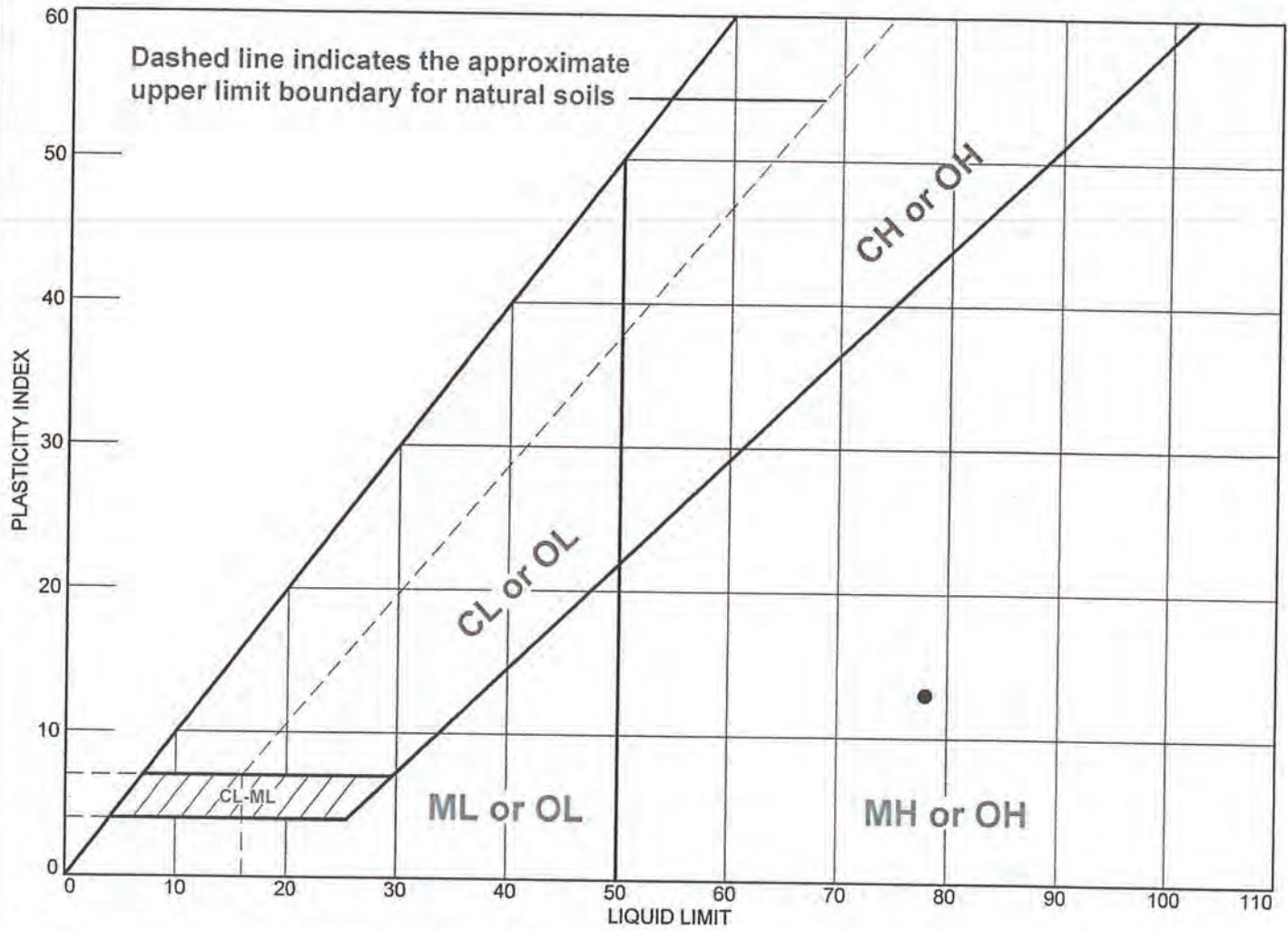


**Liquid Limit=** 78  
**Plastic Limit=** 57  
**Plasticity Index=** 21  
**Natural Moisture=** ND

### Plastic Limit Data

Run No.	1	2	3	4
<b>Wet+Tare</b>	20.80	25.76		
<b>Dry+Tare</b>	18.18	21.30		
<b>Tare</b>	13.58	13.48		
<b>Moisture</b>	57.0	57.0		

# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318



Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
Greenish Brown Sandy Elastic SILT with large amount of organics	6/10/16	7/16/16	CS	78	65	13	74.1	MH

**Project No.** 3616166052.04. **Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Source of Sample:** Bu2-060916-SED-G      **Depth:** Bulk      **Sample Number:** NA



**Checked by:** LBJ  
**Title:** Lab Manager  
**Figure**

**Tested By:** CS      **Checked By:** LBJ



## LIQUID AND PLASTIC LIMIT TEST DATA

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** Bu2-060916-SED-G

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Greenish Brown Sandy Elastic SILT with large amount of organics

**Sample Date:** 6/10/16

**%<#40:** 74.1

**USCS:** MH

**AASHTO:** A-7-5(10)

**Tested by:** CS

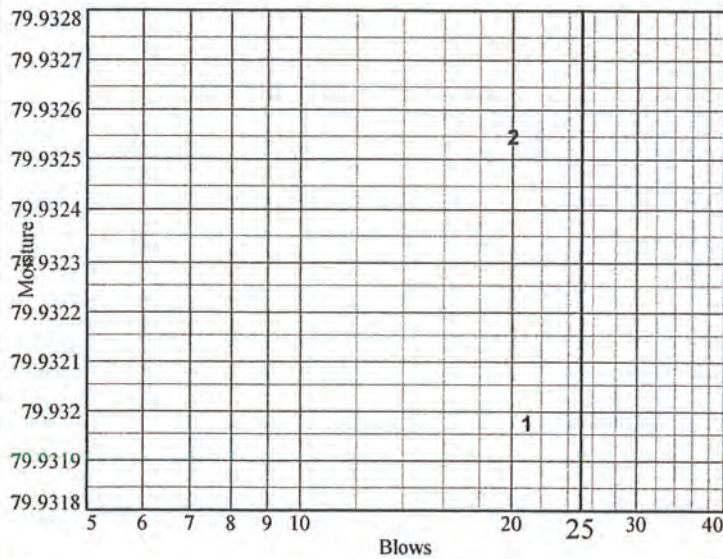
**Test Date:** 7/16/16

**Checked by:** LBJ

**Title:** Lab Manager

### Liquid Limit Data

Run No.	1	2	3	4	5	6
<b>Wet+Tare</b>	20.86	26.27				
<b>Dry+Tare</b>	18.51	21.53				
<b>Tare</b>	15.57	15.60				
<b># Blows</b>	21	20				
<b>Moisture</b>	79.9	79.9				



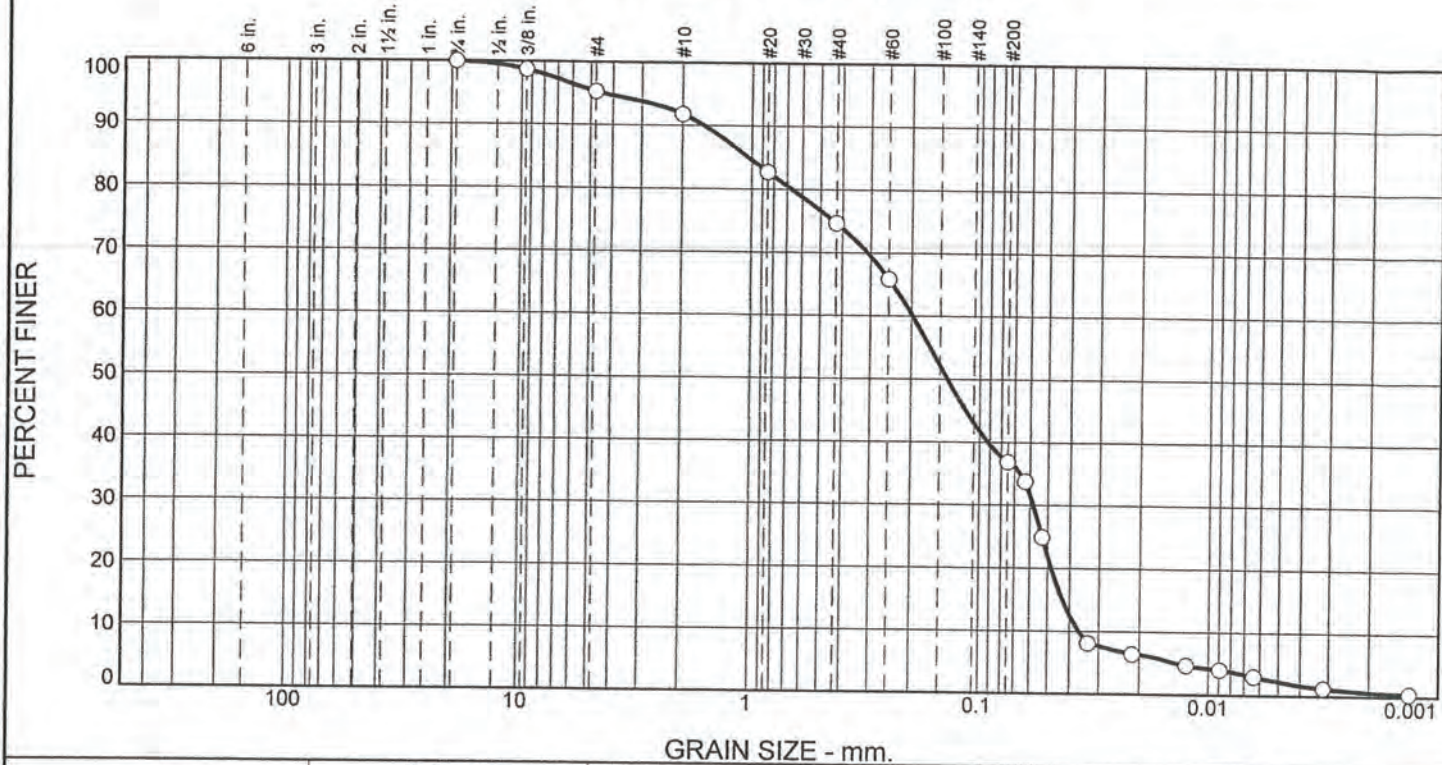
**Liquid Limit=** 78  
**Plastic Limit=** 65  
**Plasticity Index=** 13  
**Natural Moisture=** ND

### Plastic Limit Data

Run No.	1	2	3	4
<b>Wet+Tare</b>	18.81	19.53		
<b>Dry+Tare</b>	15.80	17.15		
<b>Tare</b>	11.11	13.49		
<b>Moisture</b>	64.2	65.0		



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.7	3.5	17.1	37.8	36.2	0.7

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	98.7		
#4	95.3		
#10	91.8		
#20	82.7		
#40	74.7		
#60	65.8		
#200	36.9		
#230	33.8		
#270	24.9		
0.0334 mm.	8.1		
0.0215 mm.	6.4		
0.0126 mm.	4.7		
0.0089 mm.	4.0		
0.0064 mm.	3.0		
0.0032 mm.	1.2		
0.0013 mm.	0.4		

\* (no specification provided)

**Material Description**

Grayish Brown Silty SAND

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= SM (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 1.6123      D<sub>85</sub>= 1.0308      D<sub>60</sub>= 0.1979  
D<sub>50</sub>= 0.1387      D<sub>30</sub>= 0.0580      D<sub>15</sub>= 0.0430  
D<sub>10</sub>= 0.0367      C<sub>u</sub>= 5.39      C<sub>c</sub>= 0.46

**Remarks**

ND = Not Determined    vis = visual  
Specific Gravity is assumed  
Organic Content = 3.9%

---

Date Received: 6/16/16      Date Tested: 6/17/16  
Tested By: CS  
Checked By: LBJ  
Title: Lab Manager

Source of Sample: GP33H-060916-SED-G  
Sample Number: NA

Depth: NA

Date Sampled: 6/09/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation  
Project No: 3616166052.04.03      Figure



## GRAIN SIZE DISTRIBUTION TEST DATA

7/12/2016

**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Project Number:** 3616166052.04.03  
**Location:** GP33H-060916-SED-G  
**Depth:** NA  
**Material Description:** Grayish Brown Silty SAND  
**Sample Date:** 6/09/16  
**Date Received:** 6/16/16      **PL:** ND  
**USCS Classification:** SM (vis)  
**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Sample Number:** NA  
**LL:** ND      **PI:** ND  
**AASHTO Classification:** ND

**Testing Remarks:** ND = Not Determined    vis = visual  
 Specific Gravity is assumed  
 Organic Content = 3.9%

**Tested By:** CS      **Test Date:** 6/17/16  
**Checked By:** LBJ      **Title:** Lab Manager

### Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
271.95	0.00	0.00	3/4	0.00	100.0
			.375	3.44	98.7
			#4	12.74	95.3
			#10	22.23	91.8
53.42	0.00	0.00	#20	5.30	82.7
			#40	9.98	74.7
			#60	15.13	65.8
			#200	31.97	36.9
			#230	33.76	33.8
			#270	38.92	24.9

### Hydrometer Test Data

**Hydrometer test uses material passing #200**  
**Percent passing #200 based upon complete sample = 36.9**  
**Weight of hydrometer sample = 53.42**  
**Hygroscopic moisture correction:**  
 Moist weight and tare = 28.81  
 Dry weight and tare = 28.71  
 Tare weight = 15.59  
 Hygroscopic moisture = 0.8%  
**Table of composite correction values:**  
 Temp., deg. C:      11.1      29.1  
 Comp. corr.:      -9.5      -5.0  
**Meniscus correction only = 1.0**  
**Specific gravity of solids = 2.700**  
**Hydrometer type = 152H**  
**Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	18.5	11.8	0.0131	19.5	13.1	0.0334	8.1
5.00	22.4	16.0	9.3	0.0131	17.0	13.5	0.0215	6.4
15.00	22.4	13.5	6.8	0.0131	14.5	13.9	0.0126	4.7
30.00	22.5	12.5	5.8	0.0130	13.5	14.1	0.0089	4.0
60.00	22.5	11.0	4.3	0.0130	12.0	14.3	0.0064	3.0
250.00	22.3	8.5	1.8	0.0131	9.5	14.7	0.0032	1.2

**Hydrometer Test Data (continued)**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
1440.00	21.6	7.5	0.6	0.0132	8.5	14.9	0.0013	0.4

**Fractional Components**

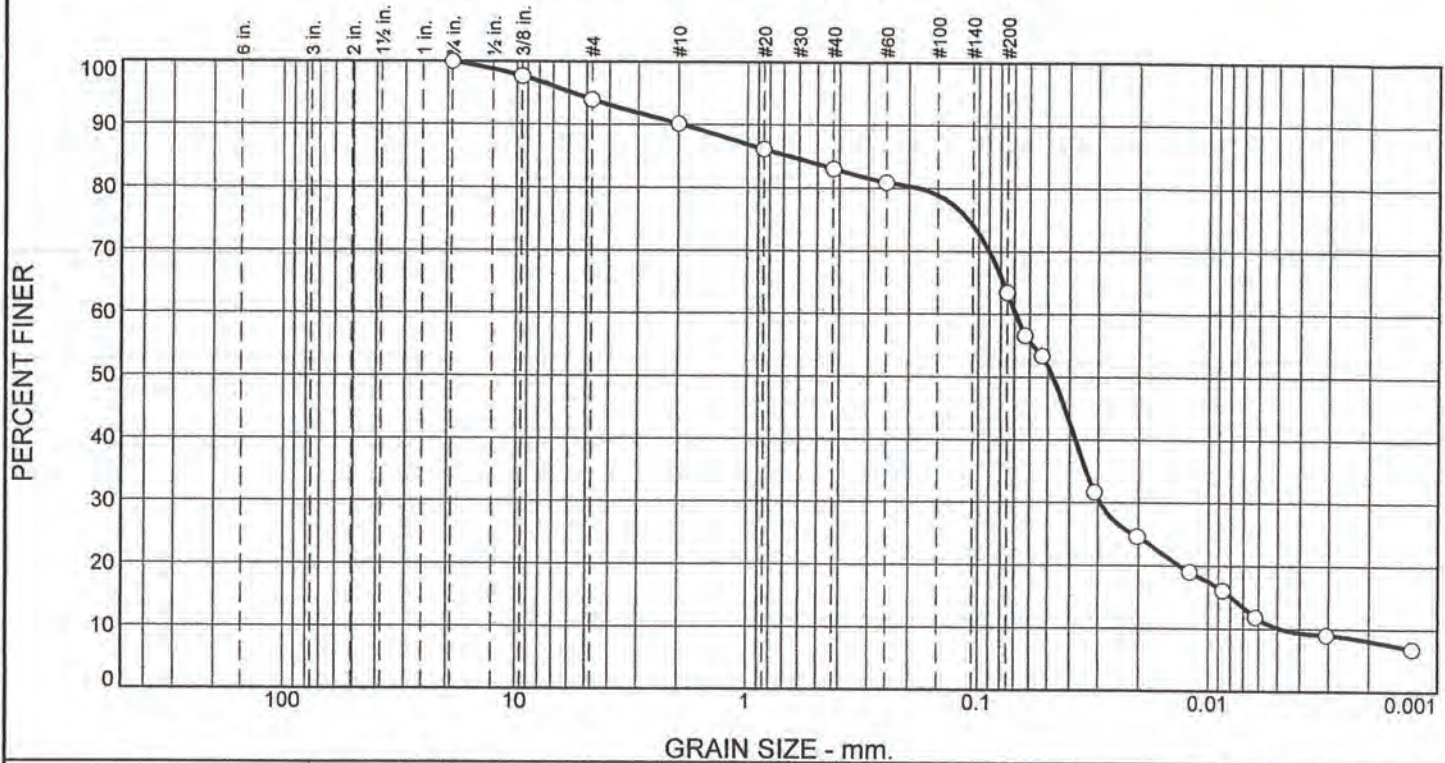
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	4.7	4.7	3.5	17.1	37.8	58.4	36.2	0.7	36.9

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0137	0.0367	0.0430	0.0482	0.0580	0.0920	0.1387	0.1979	0.6687	1.0308	1.6123	4.3781

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
1.26	5.39	0.46



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.0	3.8	7.1	19.6	55.4	8.1

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4	100.0		
.375	97.7		
#4	94.0		
#10	90.2		
#20	86.2		
#40	83.1		
#60	80.9		
#200	63.5		
#230	56.6		
#270	53.4		
0.0311 mm.	31.7		
0.0203 mm.	24.6		
0.0120 mm.	19.0		
0.0086 mm.	16.1		
0.0062 mm.	11.9		
0.0031 mm.	9.0		
0.0013 mm.	6.8		

\* (no specification provided)

**Material Description**

Greenish Brown Sandy SILT

**Atterberg Limits (ASTM D 4318)**

PL= 37                      LL= 46                      PI= 9

**Classification**

USCS (D 2487)= ML                      AASHTO (M 145)= A-5(6)

**Coefficients**

D <sub>90</sub> = 1.9309	D <sub>85</sub> = 0.6563	D <sub>60</sub> = 0.0692
D <sub>50</sub> = 0.0473	D <sub>30</sub> = 0.0294	D <sub>15</sub> = 0.0079
D <sub>10</sub> = 0.0049	C <sub>u</sub> = 14.24	C <sub>c</sub> = 2.57

**Remarks**

Specific Gravity is assumed  
Organic Contents = 10.3%

**Date Received:** 6/16/16                      **Date Tested:** 7/16/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** GP34AB-060916-SED-C  
**Sample Number:** NA

**Depth:** Bulk

**Date Sampled:** 6/11/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** GP34AB-060916-SED-C

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Greenish Brown Sandy SILT

**Sample Date:** 6/11/16

**Date Received:** 6/16/16      **PL:** 37

**LL:** 46

**PI:** 9

**USCS Classification:** ML

**AASHTO Classification:** A-5(6)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** Specific Gravity is assumed  
Organic Contents = 10.3%

**Tested By:** CS

**Test Date:** 7/16/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
176.86	0.00	0.00	3/4	0.00	100.0
			.375	4.10	97.7
			#4	10.62	94.0
			#10	17.41	90.2
45.92	0.00	0.00	#20	2.04	86.2
			#40	3.60	83.1
			#60	4.70	80.9
			#200	13.58	63.5
			#230	17.08	56.6
			#270	18.72	53.4

**Hydrometer Test Data**

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 63.5  
 Weight of hydrometer sample = 45.92  
 Hygroscopic moisture correction:  
 Moist weight and tare = 24.39  
 Dry weight and tare = 24.08  
 Tare weight = 15.58  
 Hygroscopic moisture = 3.6%  
 Table of composite correction values:  
 Temp., deg. C:      11.1      29.1  
 Comp. corr.:      -9.5      -5.0  
 Meniscus correction only = 1.0  
 Specific gravity of solids = 2.700  
 Hydrometer type = 152H  
 Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.5	29.0	22.4	0.0130	30.0	11.4	0.0311	31.7
5.00	22.6	24.0	17.4	0.0130	25.0	12.2	0.0203	24.6
15.00	22.7	20.0	13.4	0.0130	21.0	12.9	0.0120	19.0
30.00	22.5	18.0	11.3	0.0130	19.0	13.2	0.0086	16.1
60.00	22.6	15.0	8.4	0.0130	16.0	13.7	0.0062	11.9
250.00	22.6	13.0	6.4	0.0130	14.0	14.0	0.0031	9.0
1440.00	22.4	11.5	4.8	0.0131	12.5	14.2	0.0013	6.8



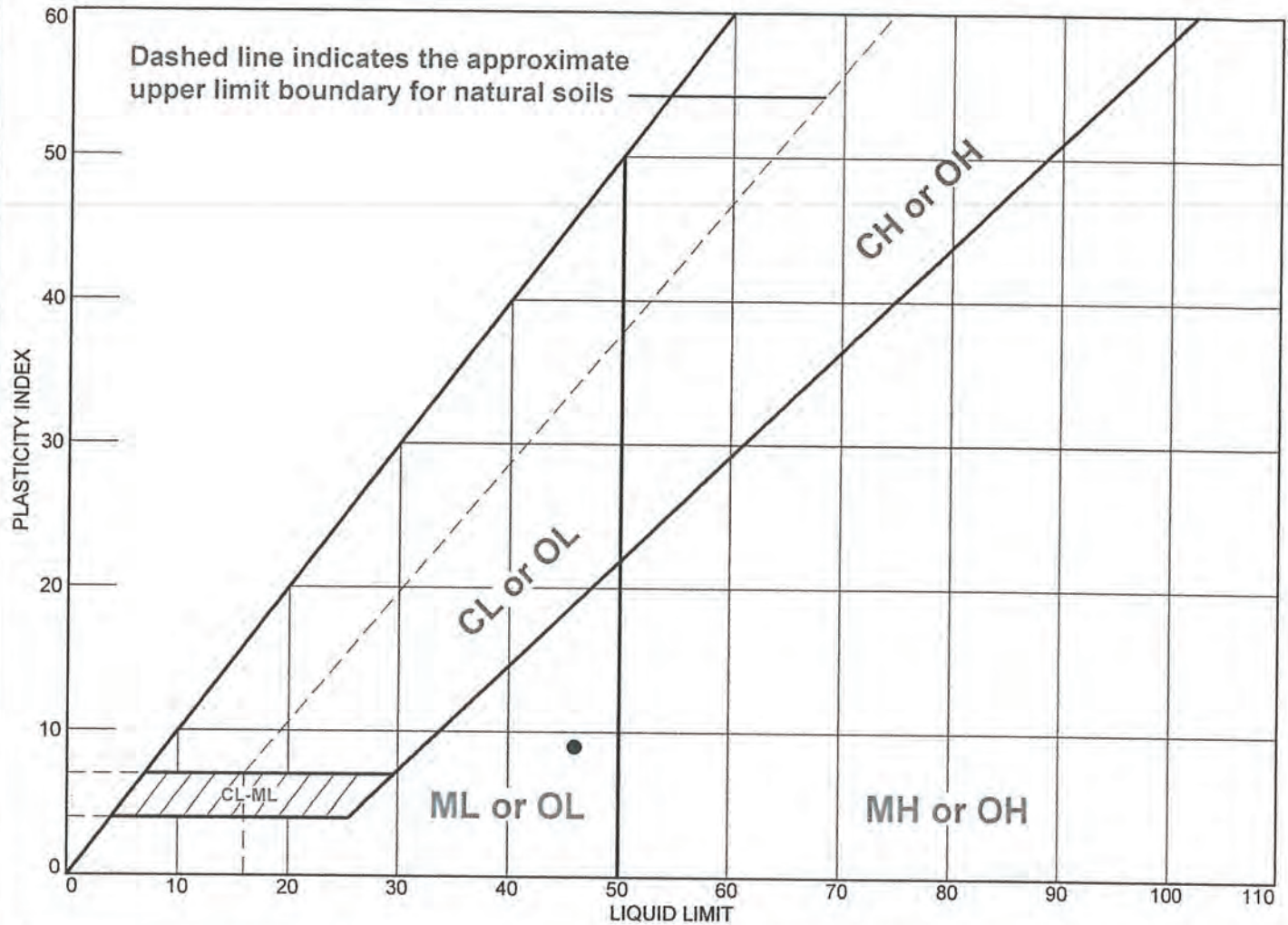
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	6.0	6.0	3.8	7.1	19.6	30.5	55.4	8.1	63.5

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0049	0.0079	0.0133	0.0294	0.0379	0.0473	0.0692	0.1802	0.6563	1.9309	5.7273

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.85	14.24	2.57

# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318



No.	Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
0	Greenish Brown Sandy SILT	6/11/16	7/16/16	CS	46	37	9	83.1	ML

**Project No.** 3616166052.04 **Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Source of Sample:** GP34AB-060916-SED-C      **Depth:** Bulk      **Sample Number:** NA

○ ND = Not determined



**Checked by:** LBJ  
**Title:** Lab Manager  
**Figure**

**Tested By:** CS

**Checked By:** LBJ



**LIQUID AND PLASTIC LIMIT TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Project Number:** 3616166052.04.03  
**Location:** GP34AB-060916-SED-C

**Depth:** Bulk **Sample Number:** NA  
**Material Description:** Greenish Brown Sandy SILT

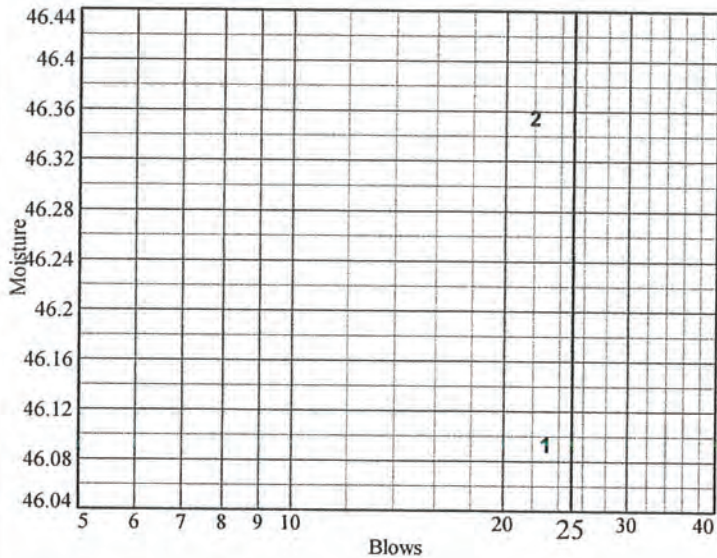
**Sample Date:** 6/11/16 **%<#40:** 83.1  
**USCS:** ML **AASHTO:** A-5(6)

**Testing Remarks:** ND = Not determined

**Tested by:** CS **Test Date:** 7/16/16 **Checked by:** LBJ **Title:** Lab Manager

**Liquid Limit Data**

Run No.	1	2	3	4	5	6
Wet+Tare	24.79	26.27				
Dry+Tare	21.25	22.90				
Tare	13.57	15.63				
# Blows	23	22				
Moisture	46.1	46.4				



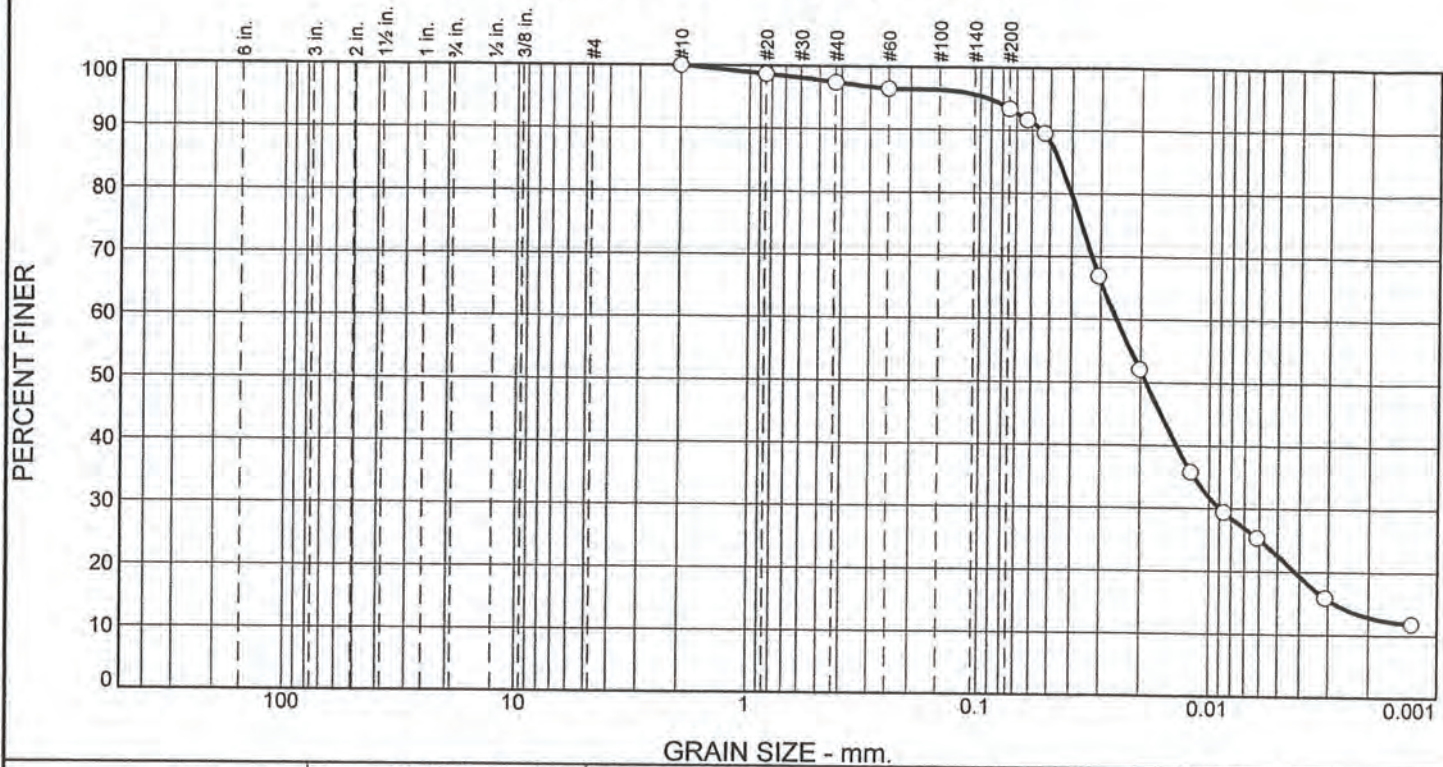
Liquid Limit= 46  
 Plastic Limit= 37  
 Plasticity Index= 9  
 Natural Moisture= ND

**Plastic Limit Data**

Run No.	1	2	3	4
Wet+Tare	15.73	14.01		
Dry+Tare	13.35	12.08		
Tare	6.87	6.91		
Moisture	36.7	37.3		



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.5	4.0	80.6	12.9

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#10	100.0		
#20	98.7		
#40	97.5		
#60	96.5		
#200	93.5		
#230	91.7		
#270	89.6		
0.0306 mm.	66.9		
0.0201 mm.	52.1		
0.0121 mm.	35.9		
0.0086 mm.	29.5		
0.0062 mm.	25.4		
0.0031 mm.	15.9		
0.0013 mm.	11.8		

\* (no specification provided)

**Material Description**

Greenish Gray Elastic SILT with Sand and Organic materials

**Atterberg Limits (ASTM D 4318)**

PL= 48                      LL= 70                      PI= 22

**Classification**

USCS (D 2487)= MH                      AASHTO (M 145)= A-7-5(30)

**Coefficients**

D<sub>90</sub>= 0.0541                      D<sub>85</sub>= 0.0454                      D<sub>60</sub>= 0.0255  
D<sub>50</sub>= 0.0189                      D<sub>30</sub>= 0.0090                      D<sub>15</sub>= 0.0028  
D<sub>10</sub>=                                      C<sub>u</sub>=                                      C<sub>c</sub>=

**Remarks**

Specific Gravity is assumed  
Organic Contents = 12%

---

**Date Received:** 6/16/16                      **Date Tested:** 7/16/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** GP35ABC-060916-SED-C  
**Sample Number:** NA

**Depth:** Bulk

**Date Sampled:** 6/10/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** GP35ABC-060916-SED-C

**Depth:** Bulk

**Sample Number:** NA

**Material Description:** Greenish Gray Elastic SILT with Sand and Organic materials

**Sample Date:** 6/10/16

**Date Received:** 6/16/16

**PL:** 48

**LL:** 70

**PI:** 22

**USCS Classification:** MH

**AASHTO Classification:** A-7-5(30)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** Specific Gravity is assumed

Organic Contents = 12%

**Tested By:** CS

**Test Date:** 7/16/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
99.58	0.00	0.00	#10	0.00	100.0
36.18	0.00	0.00	#20	0.48	98.7
			#40	0.92	97.5
			#60	1.26	96.5
			#200	2.36	93.5
			#230	2.99	91.7
			#270	3.76	89.6

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 93.5

Weight of hydrometer sample = 36.18

Hygroscopic moisture correction:

Moist weight and tare = 22.37

Dry weight and tare = 22.01

Tare weight = 15.50

Hygroscopic moisture = 5.5%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	31.5	24.8	0.0131	32.5	11.0	0.0306	66.9
5.00	22.4	26.0	19.3	0.0131	27.0	11.9	0.0201	52.1
15.00	22.3	20.0	13.3	0.0131	21.0	12.9	0.0121	35.9
30.00	22.8	17.5	10.9	0.0130	18.5	13.3	0.0086	29.5
60.00	22.8	16.0	9.4	0.0130	17.0	13.5	0.0062	25.4
250.00	22.7	12.5	5.9	0.0130	13.5	14.1	0.0031	15.9
1440.00	22.6	11.0	4.4	0.0130	12.0	14.3	0.0013	11.8

**Fractional Components**

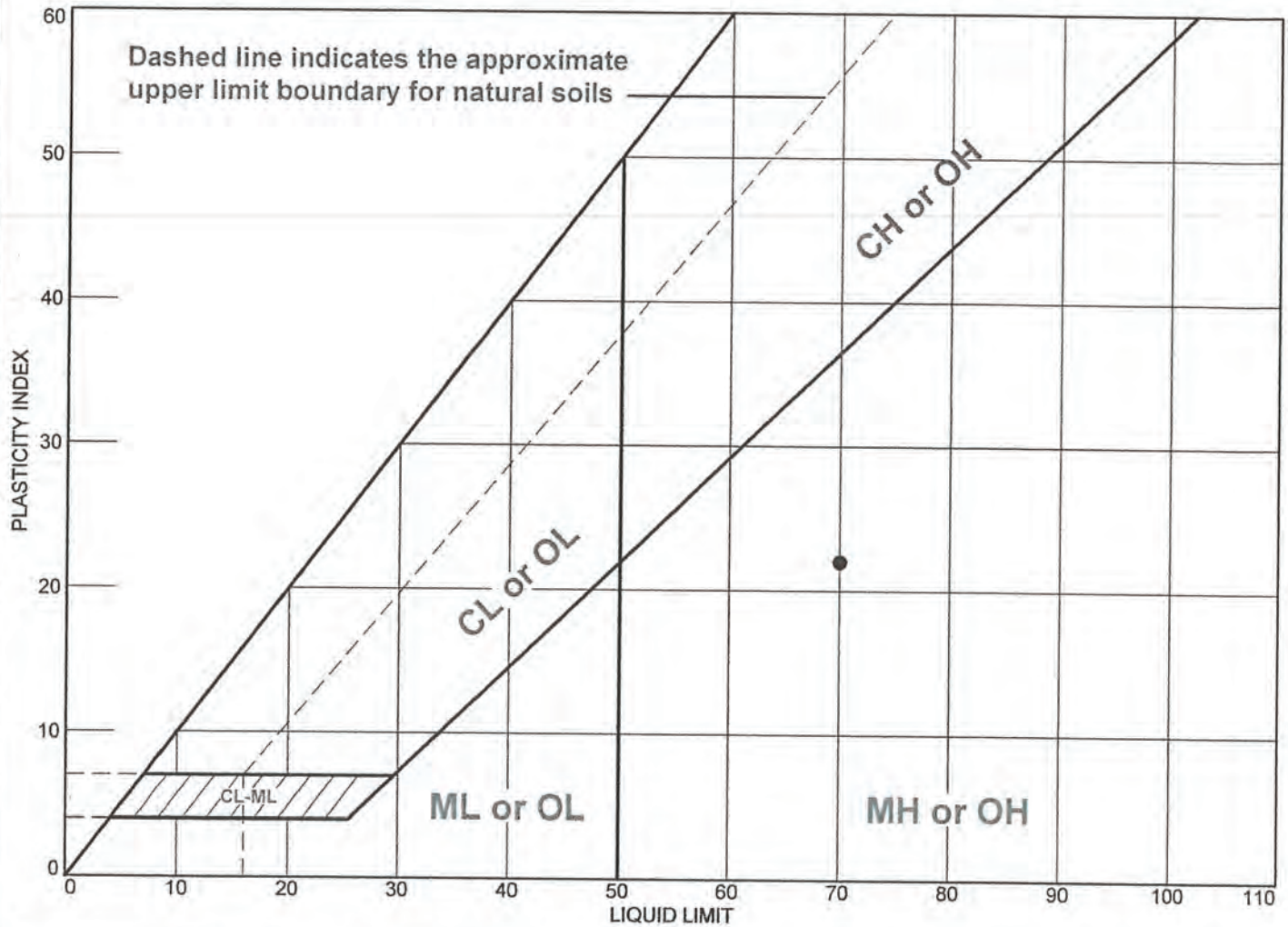
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.5	4.0	6.5	80.6	12.9	93.5

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
		0.0028	0.0042	0.0090	0.0140	0.0189	0.0255	0.0404	0.0454	0.0541	0.0918

<b>Fineness Modulus</b>
0.10



# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318



Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
○ Greenish Gray Elastic SILT with Sand and Organic materials	6/10/16	7/16/16	CS	70	48	22	97.5	MH

**Project No.** 3616166052.04 **Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Source of Sample:** GP35ABC-060916-SED-C    **Depth:** Bulk    **Sample Number:** NA

○ ND = Not determined



**Checked by:** LBJ  
**Title:** Lab Manager  
**Figure**

**Tested By:** CS

**Checked By:** LBJ

**LIQUID AND PLASTIC LIMIT TEST DATA**

7/25/2016

**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Project Number:** 3616166052.04.03  
**Location:** GP35ABC-060916-SED-C

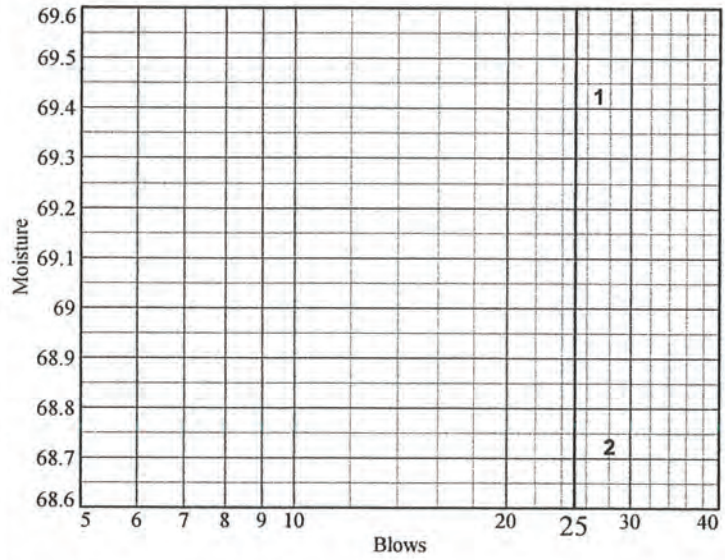
**Depth:** Bulk **Sample Number:** NA  
**Material Description:** Greenish Gray Elastic SILT with Sand and Organic materials  
**Sample Date:** 6/10/16 **%<#40:** 97.5  
**USCS:** MH **AASHTO:** A-7-5(30)

**Testing Remarks:** ND = Not determined

**Tested by:** CS **Test Date:** 7/16/16 **Checked by:** LBJ **Title:** Lab Manager

**Liquid Limit Data**

Run No.	1	2	3	4	5	6
<b>Wet+Tare</b>	25.67	25.26				
<b>Dry+Tare</b>	20.72	20.25				
<b>Tare</b>	13.59	12.96				
<b># Blows</b>	27	28				
<b>Moisture</b>	69.4	68.7				



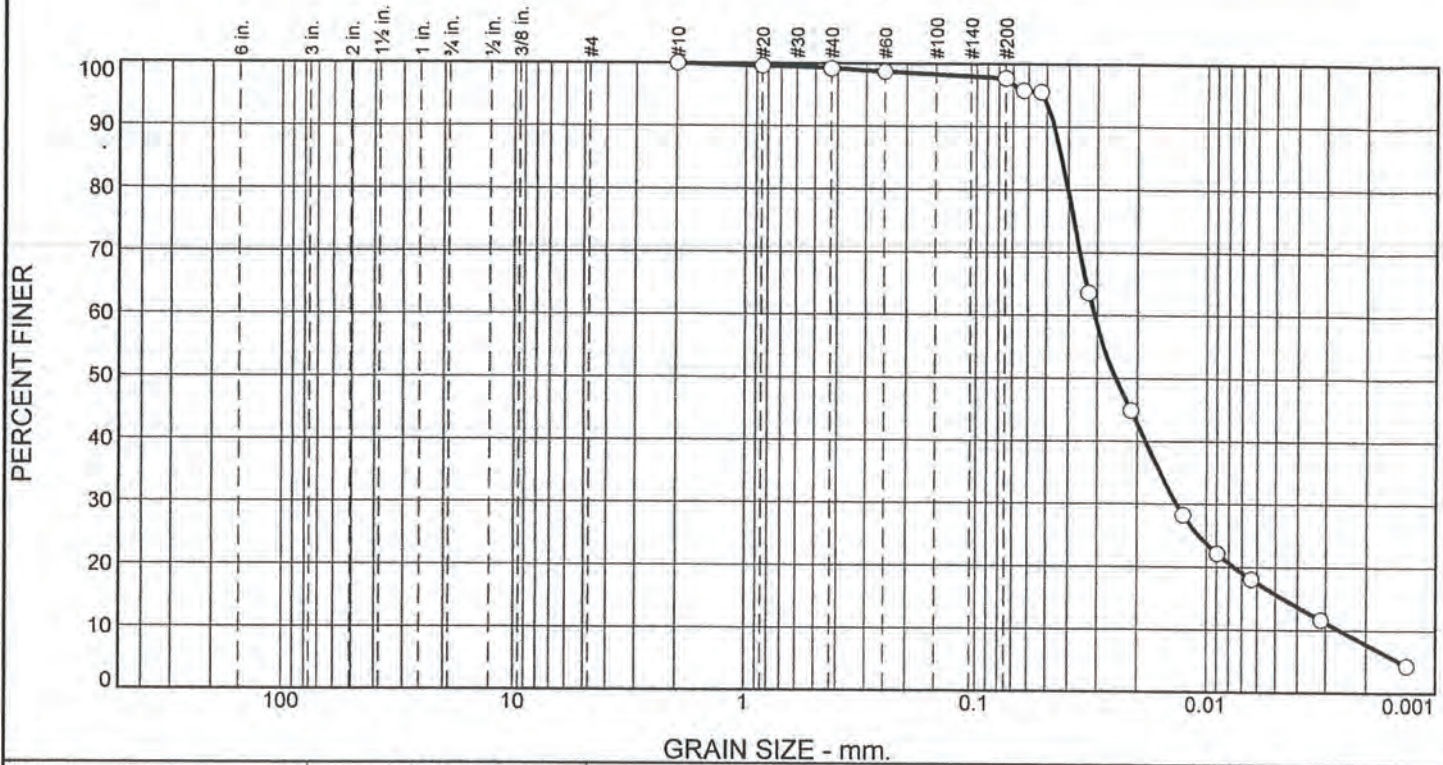
**Liquid Limit=** 70  
**Plastic Limit=** 48  
**Plasticity Index=** 22  
**Natural Moisture=** ND

**Plastic Limit Data**

Run No.	1	2	3	4		
<b>Wet+Tare</b>	12.62	12.16				
<b>Dry+Tare</b>	10.75	10.46				
<b>Tare</b>	6.86	6.92				
<b>Moisture</b>	48.1	48.0				



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.8	1.5	82.0	15.7

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#10	100.0		
#20	99.6		
#40	99.2		
#60	98.7		
#200	97.7		
#230	95.8		
#270	95.6		
0.0327 mm.	63.6		
0.0213 mm.	44.9		
0.0126 mm.	28.3		
0.0090 mm.	22.1		
0.0064 mm.	18.1		
0.0032 mm.	11.6		
0.0013 mm.	4.4		

\* (no specification provided)

**Material Description**

Dark Gray SAND with Organic Material

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= SP (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 0.0462	D <sub>85</sub> = 0.0430	D <sub>60</sub> = 0.0309
D <sub>50</sub> = 0.0248	D <sub>30</sub> = 0.0135	D <sub>15</sub> = 0.0046
D <sub>10</sub> = 0.0026	C <sub>u</sub> = 11.87	C <sub>c</sub> = 2.25

**Remarks**

ND = Not Determined    vis = visual  
Specific Gravity is assumed  
Organic Content = 9.1%

---

Date Received: 6/16/16      Date Tested: 6/17/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: GP36ABC-060816-SED-C  
Sample Number: NA

Depth: NA

Date Sampled: 6/08/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/26/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** GP36ABC-060816-SED-C

**Depth:** NA

**Sample Number:** NA

**Material Description:** Dark Gray SAND with Organic Material

**Sample Date:** 6/08/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** SP (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not Determined vis = visual

Specific Gravity is assumed

Organic Content = 9.1%

**Tested By:** CS

**Test Date:** 6/17/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
98.98	0.00	0.00	#10	0.00	100.0
23.83	0.00	0.00	#20	0.10	99.6
			#40	0.19	99.2
			#60	0.30	98.7
			#200	0.54	97.7
			#230	1.00	95.8
			#270	1.05	95.6

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 97.7

Weight of hydrometer sample = 23.83

Hygroscopic moisture correction:

Moist weight and tare = 20.85

Dry weight and tare = 20.72

Tare weight = 15.53

Hygroscopic moisture = 2.5%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	22.0	15.3	0.0131	23.0	12.5	0.0327	63.6
5.00	22.3	17.5	10.8	0.0131	18.5	13.3	0.0213	44.9
15.00	22.3	13.5	6.8	0.0131	14.5	13.9	0.0126	28.3
30.00	22.4	12.0	5.3	0.0131	13.0	14.2	0.0090	22.1
60.00	22.5	11.0	4.3	0.0130	12.0	14.3	0.0064	18.1
250.00	22.3	9.5	2.8	0.0131	10.5	14.6	0.0032	11.6
1440.00	21.3	8.0	1.0	0.0132	9.0	14.8	0.0013	4.4



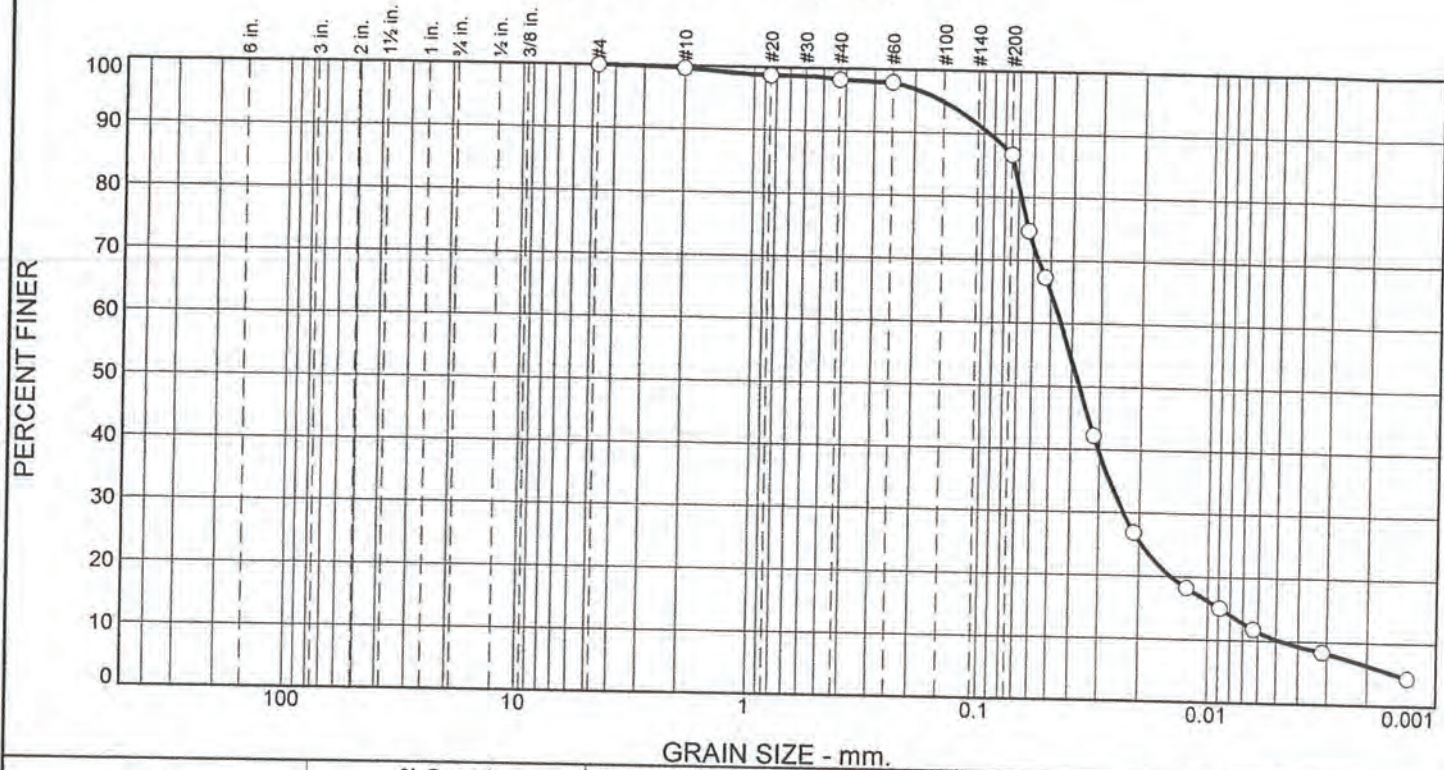
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.8	1.5	2.3	82.0	15.7	97.7

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0014	0.0026	0.0046	0.0076	0.0135	0.0184	0.0248	0.0309	0.0403	0.0430	0.0462	0.0517

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.04	11.87	2.25

# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.5	11.4	80.4	6.4

TEST RESULTS (ASTM D422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.7		
#20	98.7		
#40	98.2		
#60	97.9		
#200	86.8		
#230	74.7		
#270	67.3		
0.0319 mm.	42.2		
0.0211 mm.	26.9		
0.0125 mm.	18.3		
0.0089 mm.	15.1		
0.0063 mm.	11.8		
0.0031 mm.	8.3		
0.0013 mm.	4.4		

\* (no specification provided)

**Material Description**

Grayish Brown Sandy SILT

**Atterberg Limits (ASTM D 4318)**

PL= ND                      LL= ND                      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 0.0941              D<sub>85</sub>= 0.0731              D<sub>60</sub>= 0.0450  
D<sub>50</sub>= 0.0372              D<sub>30</sub>= 0.0235              D<sub>15</sub>= 0.0088  
D<sub>10</sub>= 0.0048              C<sub>u</sub>= 9.38                      C<sub>c</sub>= 2.56

**Remarks**

ND = Not Determined    vis = visual  
Specific Gravity is assumed  
Samples are undersized, Organics Content = 6.4%

---

Date Received: 6/16/16              Date Tested: 6/17/16  
Tested By: CS  
Checked By: LBJ  
Title: Lab Manager

Source of Sample: OD1-060916-SED-G  
Sample Number: NA

Depth: Jar

Date Sampled: 6/9/16



Client: US District Court, District of Maine  
Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure



**GRAIN SIZE DISTRIBUTION TEST DATA**

7/12/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** OD1-060916-SED-G

**Depth:** Jar

**Sample Number:** NA

**Material Description:** Grayish Brown Sandy SILT

**Sample Date:** 6/9/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** ML (vis)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D422-63(07)E2014

**Testing Remarks:** ND = Not Determined vis = visual

Specific Gravity is assumed

Samples are undersized, Organics Content = 6.4%

**Tested By:** CS

**Test Date:** 6/17/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
134.85	0.00	0.00	#4	0.00	100.0
			#10	0.47	99.7
39.82	0.00	0.00	#20	0.37	98.7
			#40	0.57	98.2
			#60	0.69	97.9
			#200	5.14	86.8
			#230	9.98	74.7
			#270	12.91	67.3

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 86.8

Weight of hydrometer sample = 39.82

Hygroscopic moisture correction:

Moist weight and tare = 25.08

Dry weight and tare = 24.84

Tare weight = 11.12

Hygroscopic moisture = 1.7%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

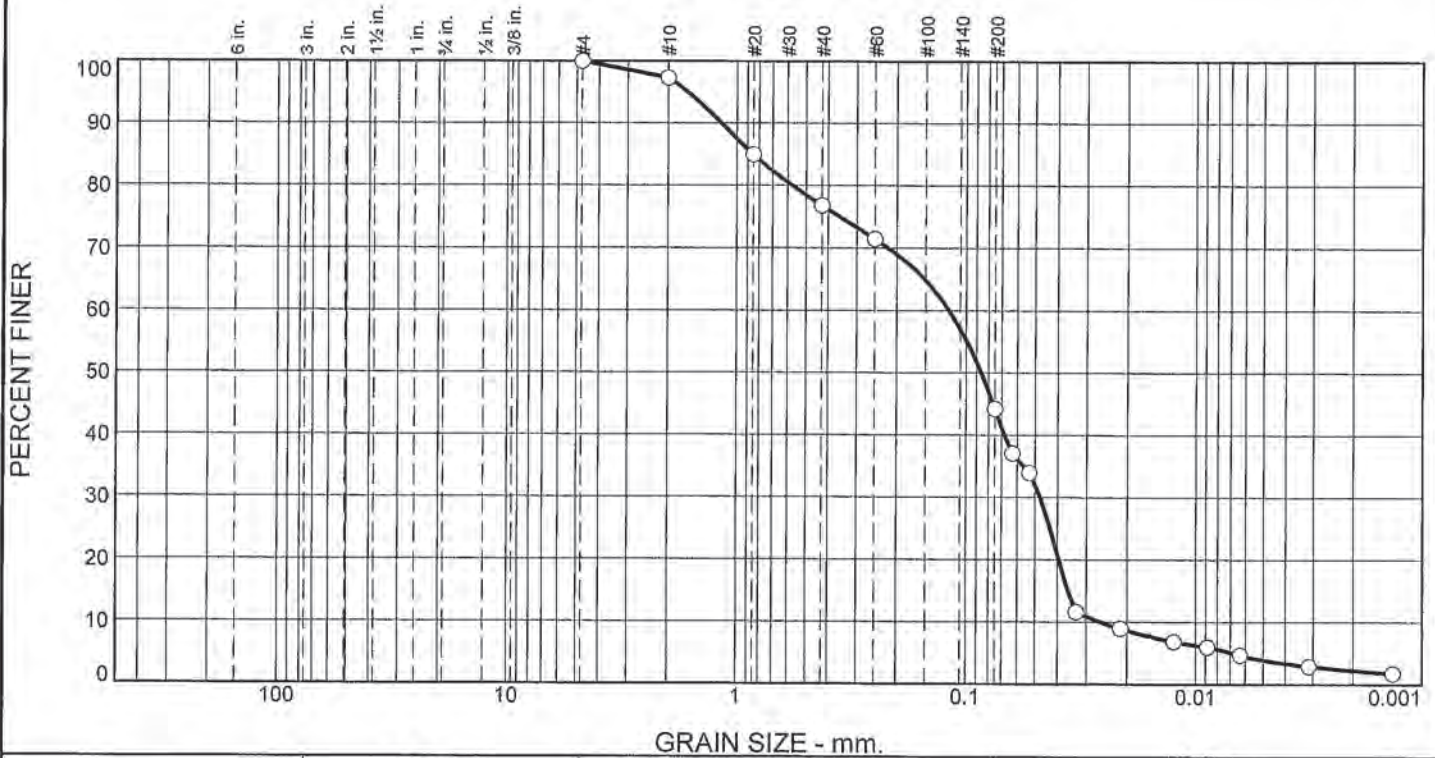
Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	26.0	19.3	0.0131	27.0	11.9	0.0319	42.2
5.00	22.1	19.0	12.3	0.0131	20.0	13.0	0.0211	26.9
15.00	22.4	15.0	8.3	0.0131	16.0	13.7	0.0125	18.3
30.00	22.6	13.5	6.9	0.0130	14.5	13.9	0.0089	15.1
60.00	22.6	12.0	5.4	0.0130	13.0	14.2	0.0063	11.8
250.00	22.3	10.5	3.8	0.0131	11.5	14.4	0.0031	8.3
1440.00	21.1	9.0	2.0	0.0133	10.0	14.7	0.0013	4.4

# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.7	20.5	32.6	40.3	3.9

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	97.3		
#20	84.9		
#40	76.8		
#60	71.4		
#200	44.2		
#230	37.1		
#270	34.0		
0.0332 mm.	11.6		
0.0214 mm.	9.0		
0.0125 mm.	6.9		
0.0089 mm.	6.0		
0.0063 mm.	4.7		
0.0031 mm.	2.9		
0.0013 mm.	1.8		

\* (no specification provided)

**Material Description**

Gray Greenish Brown Clayey Silty SAND

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= SC-SM(vis)      AASHTO (M 145)=

**Coefficients**

D<sub>90</sub>= 1.1753      D<sub>85</sub>= 0.8531      D<sub>60</sub>= 0.1188  
D<sub>50</sub>= 0.0861      D<sub>30</sub>= 0.0475      D<sub>15</sub>= 0.0360  
D<sub>10</sub>= 0.0258      C<sub>u</sub>= 4.61      C<sub>c</sub>= 0.74


**Remarks**

ND = Not Determined      vis = visual  
Organic Contents = 3.3%  
Specific Gravity is assumed

Date Received: 6/16/16      Date Tested: 6/18/16  
Tested By: CS  
Checked By: LBJ  
Title: Lab Manager

Source of Sample: OD2-060916SED-G      Depth: Jar      Date Sampled: 6/9/16  
Sample Number: NA

	<p><b>Client:</b> US District Court, District of Maine</p> <p><b>Project:</b> Penobscot River Phase III Engineering Evaluation</p> <p><b>Project No:</b> 3616166052.04.03</p> <p style="text-align: right;"><b>Figure</b></p>
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**GRAIN SIZE DISTRIBUTION TEST DATA**

8/5/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** OD2-060916SED-G

**Depth:** Jar

**Sample Number:** NA

**Material Description:** Gray Greenish Brown Clayey Silty SAND

**Sample Date:** 6/9/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** SC-SM(vis)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not Determined vis = visual

Organic Contents = 3.3%

Specific Gravity is assumed

**Tested By:** CS

**Test Date:** 6/18/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
222.80	0.00	0.00	#4	0.00	100.0
			#10	6.02	97.3
50.42	0.00	0.00	#20	6.40	84.9
			#40	10.63	76.8
			#60	13.41	71.4
			#200	27.50	44.2
			#230	31.20	37.1
			#270	32.81	34.0

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 44.2

Weight of hydrometer sample = 50.42

Hygroscopic moisture correction:

Moist weight and tare = 28.39

Dry weight and tare = 28.25

Tare weight = 15.82

Hygroscopic moisture = 1.1%

Table of composite correction values:

Temp., deg. C: 11.1 29.1

Comp. corr.: -9.5 -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	20.0	13.3	0.0131	21.0	12.9	0.0332	11.6
5.00	22.1	17.0	10.3	0.0131	18.0	13.3	0.0214	9.0
15.00	22.5	14.5	7.8	0.0130	15.5	13.8	0.0125	6.9
30.00	22.5	13.5	6.8	0.0130	14.5	13.9	0.0089	6.0
60.00	22.5	12.0	5.3	0.0130	13.0	14.2	0.0063	4.7
250.00	22.4	10.0	3.3	0.0131	11.0	14.5	0.0031	2.9
1440.00	21.1	9.0	2.0	0.0133	10.0	14.7	0.0013	1.8

**Fractional Components**

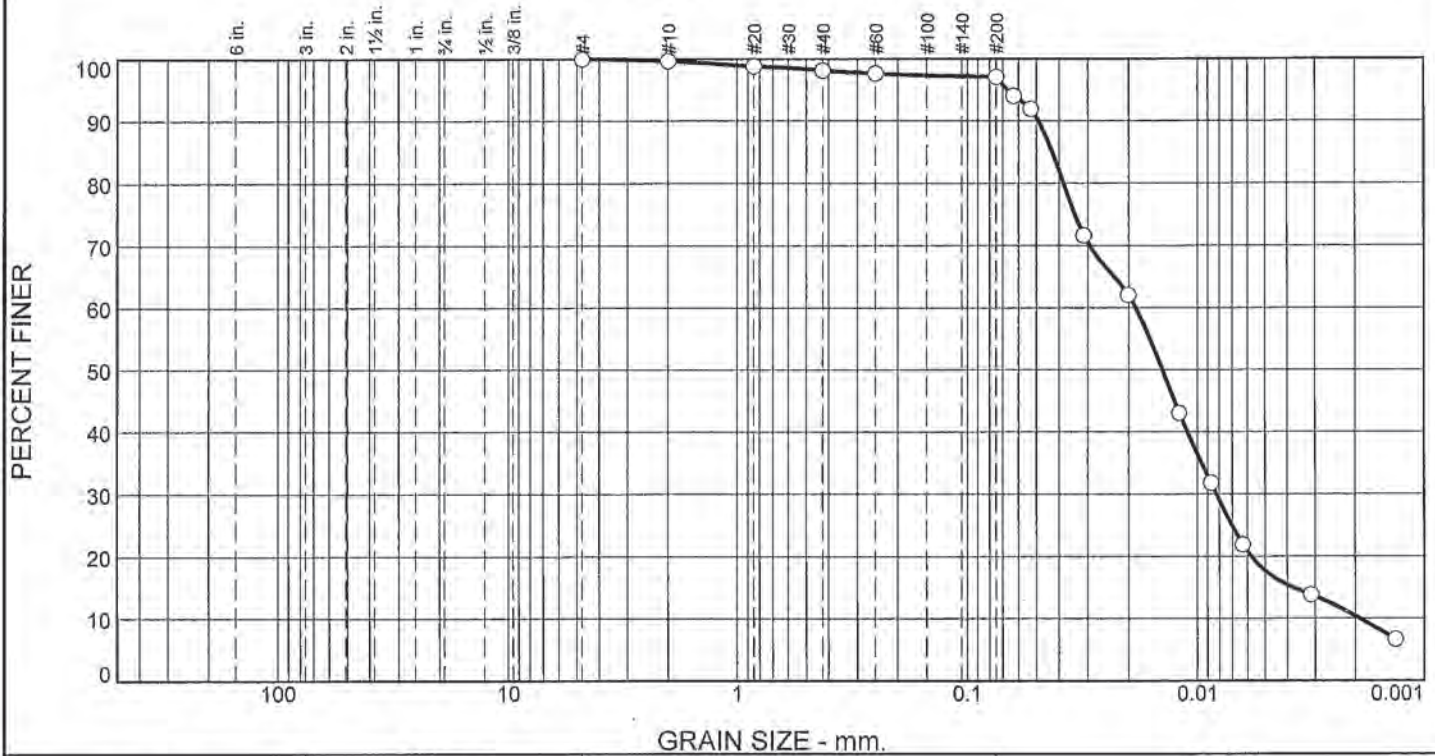
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	2.7	20.5	32.6	55.8	40.3	3.9	44.2

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0068	0.0258	0.0360	0.0396	0.0475	0.0684	0.0861	0.1188	0.5756	0.8531	1.1753	1.6398

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.94	4.61	0.74



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.6	1.0	79.4	17.7

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.7		
#20	98.8		
#40	98.1		
#60	97.7		
#200	97.1		
#230	94.0		
#270	91.9		
0.0312 mm.	71.7		
0.0202 mm.	62.1		
0.0121 mm.	43.1		
0.0087 mm.	31.8		
0.0063 mm.	21.9		
0.0031 mm.	13.8		
0.0013 mm.	6.7		

\* (no specification provided)

**Material Description**

Greenish Gray Sandy SILT

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)=

**Coefficients**

D <sub>90</sub> = 0.0491	D <sub>85</sub> = 0.0429	D <sub>60</sub> = 0.0187
D <sub>50</sub> = 0.0143	D <sub>30</sub> = 0.0083	D <sub>15</sub> = 0.0038
D <sub>10</sub> = 0.0019	C <sub>u</sub> = 9.82	C <sub>c</sub> = 1.90

**Remarks**

ND = Not determined    vis = visual  
 Organic Contents = 12.1%  
 Specific Gravity is assumed

**Date Received:** 6/16/16      **Date Tested:** 6/17/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** OD3-060916-SED-G  
**Sample Number:** NA

**Depth:** Jar

**Date Sampled:** 6/9/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**

**GRAIN SIZE DISTRIBUTION TEST DATA**

8/5/2016

**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation  
**Project Number:** 3616166052.04.03  
**Location:** OD3-060916-SED-G

**Depth:** Jar **Sample Number:** NA

**Material Description:** Greenish Gray Sandy SILT

**Sample Date:** 6/9/16

**Date Received:** 6/16/16 **PL:** ND **LL:** ND **PI:** ND

**USCS Classification:** ML (vis)

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not determined vis = visual

Organic Contents = 12.1%

Specific Gravity is assumed

Sample is undersized

**Tested By:** CS

**Test Date:** 6/17/16

**Checked By:** LBJ

**Title:** Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
100.61	0.00	0.00	#4	0.00	100.0
			#10	0.33	99.7
30.62	0.00	0.00	#20	0.26	98.8
			#40	0.48	98.1
			#60	0.62	97.7
			#200	0.79	97.1
			#230	1.73	94.0
			#270	2.38	91.9

**Hydrometer Test Data**

**Hydrometer test uses material passing #200**  
**Percent passing #200 based upon complete sample = 97.1**  
**Weight of hydrometer sample = 30.62**

**Hygroscopic moisture correction:**

Moist weight and tare = 22.77

Dry weight and tare = 22.58

Tare weight = 15.52

Hygroscopic moisture = 2.7%

**Table of composite correction values:**

**Temp., deg. C:** 11.1 29.1

**Comp. corr.:** -9.5 -5.0

**Meniscus correction only = 1.0**

**Specific gravity of solids = 2.700**

**Hydrometer type = 152H**

**Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	29.0	22.3	0.0131	30.0	11.4	0.0312	71.7
5.00	22.2	26.0	19.3	0.0131	27.0	11.9	0.0202	62.1
15.00	22.6	20.0	13.4	0.0130	21.0	12.9	0.0121	43.1
30.00	22.6	16.5	9.9	0.0130	17.5	13.4	0.0087	31.8
60.00	22.3	13.5	6.8	0.0131	14.5	13.9	0.0063	21.9
250.00	22.3	11.0	4.3	0.0131	12.0	14.3	0.0031	13.8
1440.00	21.4	9.0	2.1	0.0132	10.0	14.7	0.0013	6.7



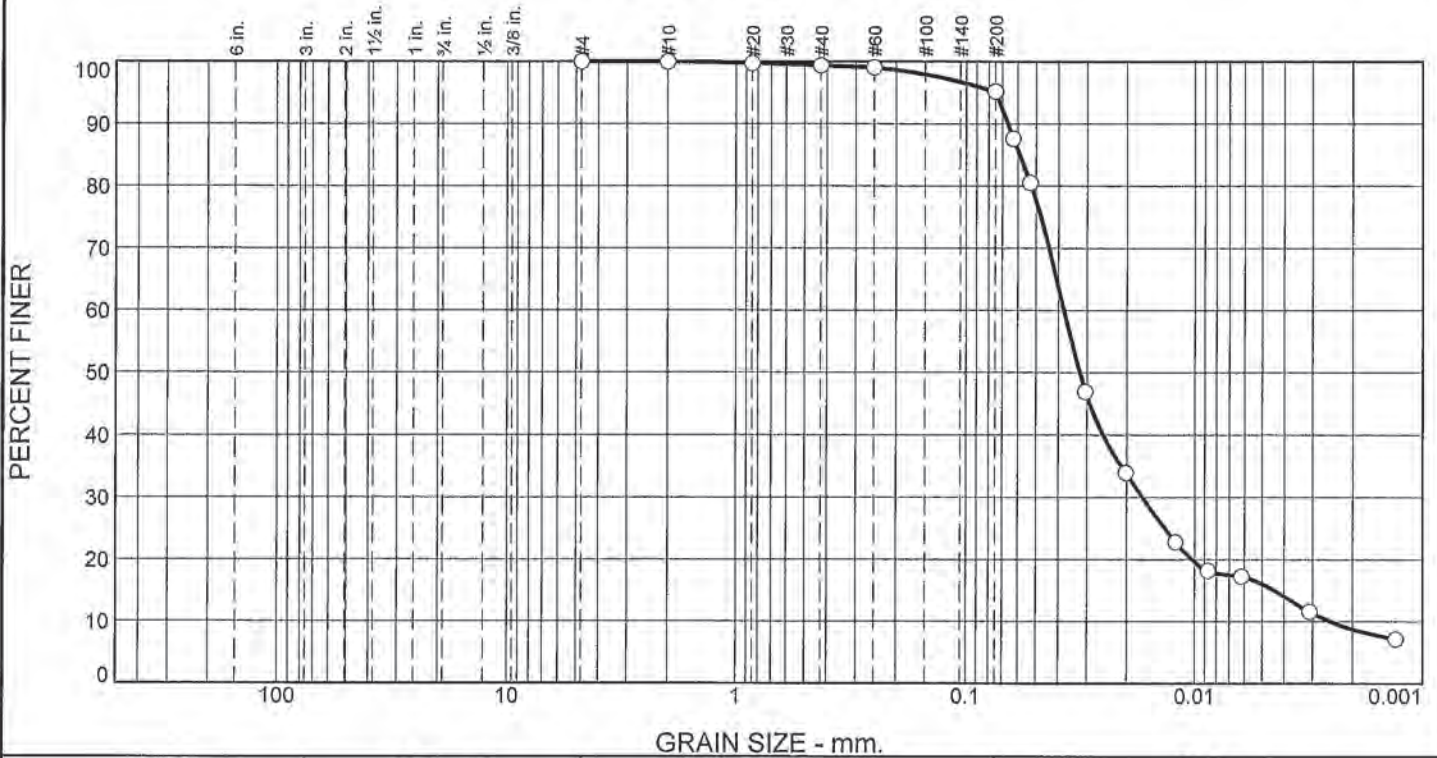
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	1.6	1.0	2.9	79.4	17.7	97.1

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0019	0.0038	0.0058	0.0083	0.0111	0.0143	0.0187	0.0383	0.0429	0.0491	0.0670

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.07	9.82	1.90

# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	4.2	79.1	16.1

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	100.0		
#20	99.7		
#40	99.4		
#60	99.0		
#200	95.2		
#230	87.6		
#270	80.5		
0.0304 mm.	46.9		
0.0202 mm.	34.0		
0.0122 mm.	22.8		
0.0087 mm.	18.2		
0.0062 mm.	17.3		
0.0031 mm.	11.6		
0.0013 mm.	7.2		

\* (no specification provided)

**Material Description**

Gray Greenish Brown Sandy SILT

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 0.0665	D <sub>85</sub> = 0.0590	D <sub>60</sub> = 0.0379
D <sub>50</sub> = 0.0323	D <sub>30</sub> = 0.0170	D <sub>15</sub> = 0.0044
D <sub>10</sub> = 0.0025	C <sub>u</sub> = 15.24	C <sub>c</sub> = 3.08

**Remarks**

ND = Not Determined    vis = visual  
 Organic Contents = 5.3%  
 Specific Gravity is assumed

---

**Date Received:** 6/6/16      **Date Tested:** 6/17/18

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** FPC1-060816-SED-G  
**Sample Number:** NA

**Depth:** Jar

**Date Sampled:** 6/9/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**





**Fractional Components**

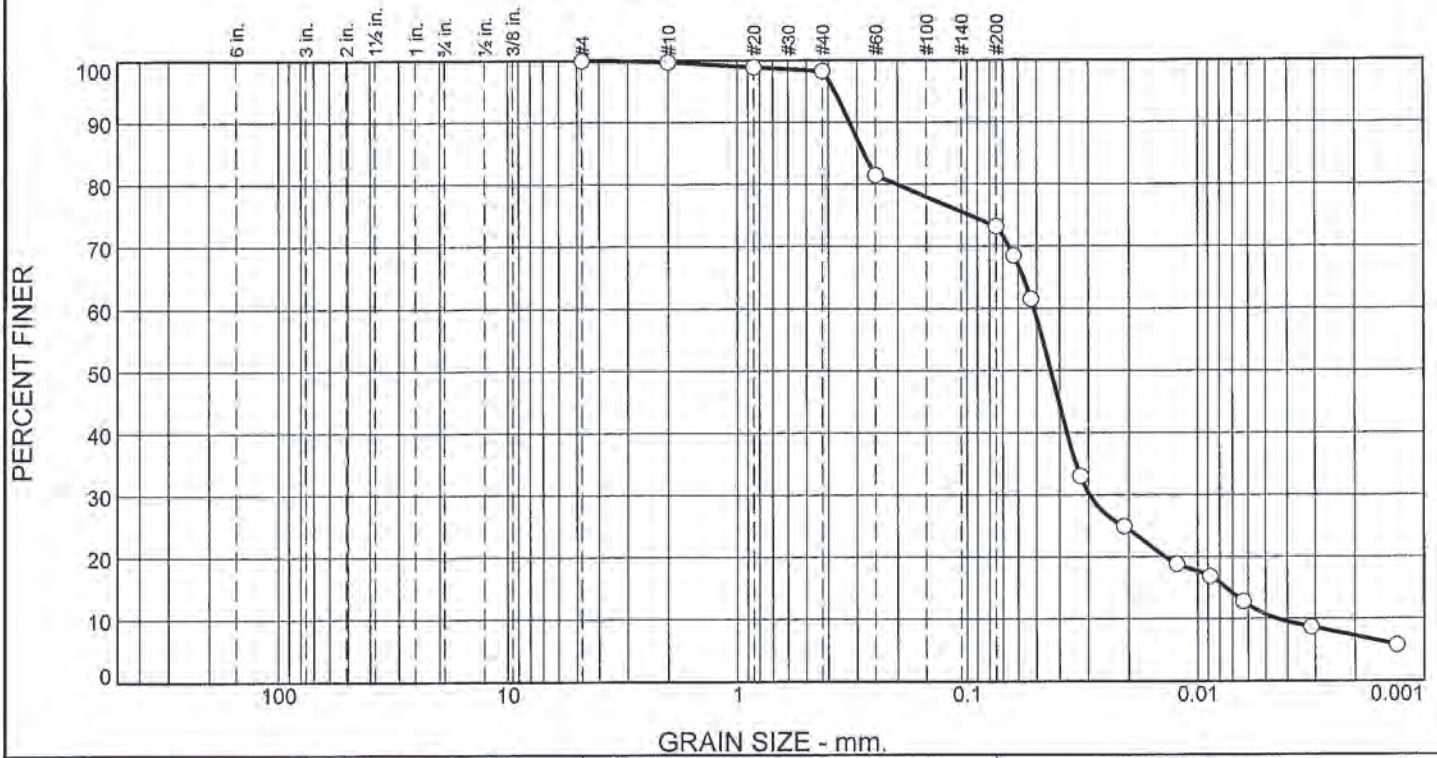
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.6	4.2	4.8	79.1	16.1	95.2

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0025	0.0044	0.0103	0.0170	0.0256	0.0323	0.0379	0.0524	0.0590	0.0665	0.0746

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.04	15.24	3.08



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.4	25.1	62.5	10.7

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.7		
#20	98.9		
#40	98.3		
#60	81.4		
#200	73.2		
#230	68.5		
#270	61.5		
0.0324 mm.	33.0		
0.0211 mm.	24.9		
0.0124 mm.	18.9		
0.0088 mm.	16.8		
0.0063 mm.	12.8		
0.0031 mm.	8.7		
0.0013 mm.	5.8		

\* (no specification provided)

**Material Description**

Grayish Brown Sandy SILT

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 0.3247	D <sub>85</sub> = 0.2817	D <sub>60</sub> = 0.0515
D <sub>50</sub> = 0.0436	D <sub>30</sub> = 0.0297	D <sub>15</sub> = 0.0075
D <sub>10</sub> = 0.0044	C <sub>u</sub> = 11.58	C <sub>c</sub> = 3.86

**Remarks**

ND = Not determined    vis = visual  
 Organic Content = 6.4%  
 Specific Gravity is assumed

Date Received: 6/16/16      Date Tested: 6/17/16

Tested By: CS

Checked By: LBJ

Title: Lab Manager

Source of Sample: FPC2-060816-SED-G  
 Sample Number: NA

Depth: NA

Date Sampled: 6/8/16



Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation

Project No: 3616166052.04.03

Figure

**GRAIN SIZE DISTRIBUTION TEST DATA**

8/5/2016

Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Project Number: 3616166052.04.03  
 Location: FPC2-060816-SED-G  
 Depth: NA  
 Material Description: Grayish Brown Sandy SILT  
 Sample Date: 6/8/16  
 Date Received: 6/16/16      PL: ND  
 USCS Classification: ML (vis)  
 Grain Size Test Method: ASTM D 422-63(07)E2014  
 Testing Remarks: ND = Not determined    vis = visual

Sample Number: NA  
 LL: ND      PI: ND  
 AASHTO Classification: ND

Organic Content = 6.4%  
 Specific Gravity is assumed  
 Sample is undersized

Tested By: CS  
 Checked By: LBJ

Test Date: 6/17/16  
 Title: Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
139.61	0.00	0.00	#4	0.00	100.0
			#10	0.39	99.7
36.44	0.00	0.00	#20	0.30	98.9
			#40	0.53	98.3
			#60	6.68	81.4
			#200	9.69	73.2
			#230	11.40	68.5
			#270	13.96	61.5

**Hydrometer Test Data**

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 73.2  
 Weight of hydrometer sample = 36.44  
 Hygroscopic moisture correction:  
 Moist weight and tare = 23.85  
 Dry weight and tare = 23.70  
 Tare weight = 15.48  
 Hygroscopic moisture = 1.8%  
 Table of composite correction values:  
 Temp., deg. C:      11.1      29.1  
 Comp. corr.:      -9.5      -5.0  
 Meniscus correction only = 1.0  
 Specific gravity of solids = 2.700  
 Hydrometer type = 152H  
 Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	23.0	16.3	0.0131	24.0	12.4	0.0324	33.0
5.00	22.4	19.0	12.3	0.0131	20.0	13.0	0.0211	24.9
15.00	22.4	16.0	9.3	0.0131	17.0	13.5	0.0124	18.9
30.00	22.4	15.0	8.3	0.0131	16.0	13.7	0.0088	16.8
60.00	22.4	13.0	6.3	0.0131	14.0	14.0	0.0063	12.8
250.00	22.3	11.0	4.3	0.0131	12.0	14.3	0.0031	8.7
1440.00	22.6	9.5	2.9	0.0130	10.5	14.6	0.0013	5.8



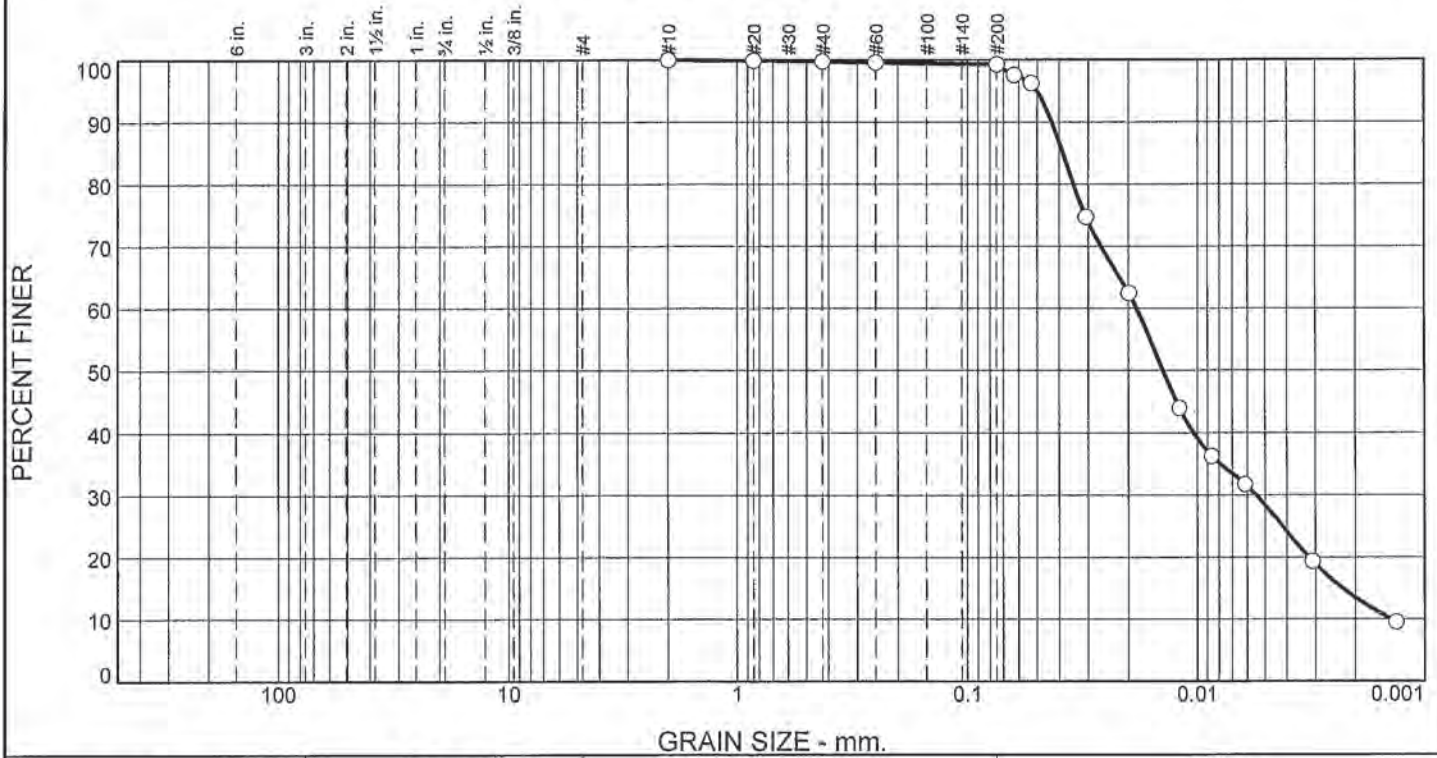
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	1.4	25.1	26.8	62.5	10.7	73.2

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0044	0.0075	0.0140	0.0297	0.0372	0.0436	0.0515	0.2025	0.2817	0.3247	0.3760

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.37	11.58	3.86

# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	0.4	71.0	28.3

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#10	100.0		
#20	99.9		
#40	99.7		
#60	99.5		
#200	99.3		
#230	97.6		
#270	96.2		
0.0307 mm.	74.7		
0.0200 mm.	62.4		
0.0120 mm.	44.0		
0.0086 mm.	36.3		
0.0062 mm.	31.8		
0.0031 mm.	19.4		
0.0013 mm.	9.5		

\* (no specification provided)

**Material Description**

Grayish Brown Silt with Sand

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= ML (vis)    AASHTO (M 145)= ND

**Coefficients**

D <sub>90</sub> = 0.0432	D <sub>85</sub> = 0.0386	D <sub>60</sub> = 0.0186
D <sub>50</sub> = 0.0142	D <sub>30</sub> = 0.0055	D <sub>15</sub> = 0.0023
D <sub>10</sub> = 0.0014	C <sub>u</sub> = 13.32	C <sub>c</sub> = 1.17

**Remarks**

ND = Not Determined    vis = visual  
 Organic Content = 11.8%  
 Specific Gravity is assumed

---

**Date Received:** 6/16/16      **Date Tested:** 6/17/16

**Tested By:** CS

**Checked By:** LBJ

**Title:** Lab Manager

**Source of Sample:** FPC3-060816-SED-G  
**Sample Number:** NA

**Depth:** NA

**Date Sampled:** 6/9/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**



**GRAIN SIZE DISTRIBUTION TEST DATA**

8/5/2016

Client: US District Court, District of Maine  
 Project: Penobscot River Phase III Engineering Evaluation  
 Project Number: 3616166052.04.03  
 Location: FPC3-060816-SED-G  
 Depth: NA  
 Material Description: Grayish Brown Silt with Sand  
 Sample Date: 6/9/16  
 Date Received: 6/16/16      PL: ND  
 USCS Classification: ML (vis)  
 Grain Size Test Method: ASTM D 422-63(07)E2014  
 Testing Remarks: ND = Not Determined   vis = visual

Sample Number: NA  
 LL: ND      PI: ND  
 AASHTO Classification: ND

Organic Content = 11.8%  
 Specific Gravity is assumed  
 Sample is undersized

Tested By: CS  
 Checked By: LBJ

Test Date: 6/17/16  
 Title: Lab Manager

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
110.22	0.00	0.00	#10	0.00	100.0
32.97	0.00	0.00	#20	0.04	99.9
			#40	0.09	99.7
			#60	0.15	99.5
			#200	0.24	99.3
			#230	0.80	97.6
			#270	1.24	96.2

**Hydrometer Test Data**

Hydrometer test uses material passing #200  
 Percent passing #200 based upon complete sample = 99.3  
 Weight of hydrometer sample = 32.97  
 Hygroscopic moisture correction:  
 Moist weight and tare = 24.33  
 Dry weight and tare = 24.05  
 Tare weight = 15.55  
 Hygroscopic moisture = 3.3%  
 Table of composite correction values:  
 Temp., deg. C:      11.1      29.1  
 Comp. corr.:      -9.5      -5.0  
 Meniscus correction only = 1.0  
 Specific gravity of solids = 2.700  
 Hydrometer type = 152H  
 Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	31.0	24.3	0.0131	32.0	11.0	0.0307	74.7
5.00	22.3	27.0	20.3	0.0131	28.0	11.7	0.0200	62.4
15.00	22.3	21.0	14.3	0.0131	22.0	12.7	0.0120	44.0
30.00	22.3	18.5	11.8	0.0131	19.5	13.1	0.0086	36.3
60.00	22.4	17.0	10.3	0.0131	18.0	13.3	0.0062	31.8
250.00	22.3	13.0	6.3	0.0131	14.0	14.0	0.0031	19.4
1440.00	21.5	10.0	3.1	0.0132	11.0	14.5	0.0013	9.5

**Fractional Components**

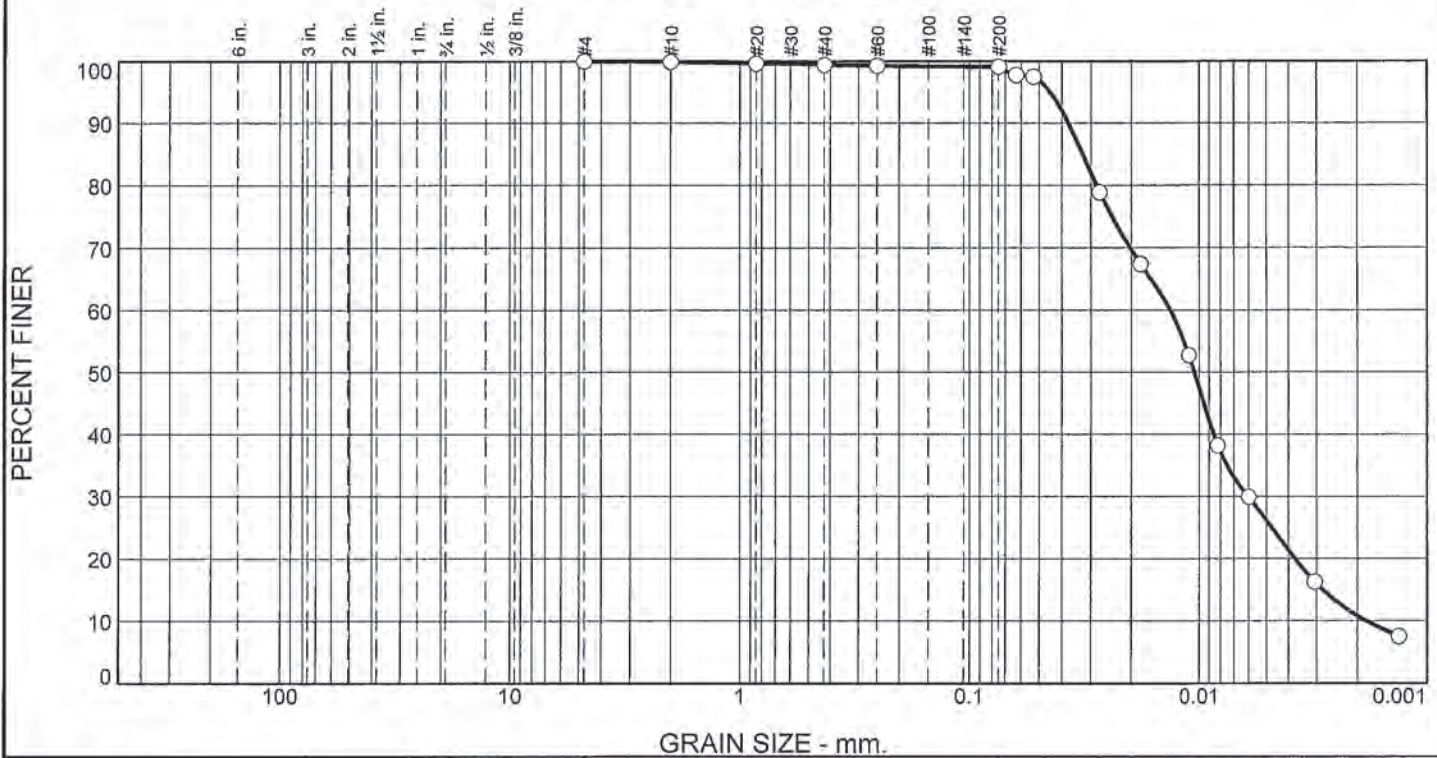
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.7	71.0	28.3	99.3

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0014	0.0023	0.0032	0.0055	0.0104	0.0142	0.0186	0.0347	0.0386	0.0432	0.0499

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.01	13.32	1.17



# ASTM D 422-63(07)E2014



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.5	0.3	73.0	26.1

TEST RESULTS (ASTM D 422-63(07)E2014)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.4		
#60	99.3		
#200	99.1		
#230	97.8		
#270	97.5		
0.0275 mm.	78.8		
0.0182 mm.	67.4		
0.011 mm.	52.8		
0.0083 mm.	38.2		
0.0060 mm.	29.9		
0.0031 mm.	16.3		
0.0013 mm.	7.6		

\* (no specification provided)

**Material Description**

Olive Greenish Brown SILT with large amount of organics

**Atterberg Limits (ASTM D 4318)**

PL= ND      LL= ND      PI= ND

**Classification**

USCS (D 2487)= ML (visual)      ASHTO (M 145)= ND

**Coefficients**

D<sub>90</sub>= 0.0376      D<sub>85</sub>= 0.0326      D<sub>60</sub>= 0.0135  
 D<sub>50</sub>= 0.0105      D<sub>30</sub>= 0.0060      D<sub>15</sub>= 0.0028  
 D<sub>10</sub>= 0.0018      C<sub>u</sub>= 7.46      C<sub>c</sub>= 1.48

**Remarks**

ND = Not determined      Organic Contents = 72.2%  
 Specific Gravity is assumed  
 Sample is undersized      vis = visual

**Date Received:** 6/16/16      **Date Tested:** 6/20/16  
**Tested By:** CS  
**Checked By:** \_\_\_\_\_  
**Title:** \_\_\_\_\_

**Source of Sample:** FPC4-060816-SED-G  
**Sample Number:** NA

**Depth:** NA

**Date Sampled:** 6/9/16



**Client:** US District Court, District of Maine  
**Project:** Penobscot River Phase III Engineering Evaluation

**Project No:** 3616166052.04.03

**Figure**

**GRAIN SIZE DISTRIBUTION TEST DATA**

8/5/2016

**Client:** US District Court, District of Maine

**Project:** Penobscot River Phase III Engineering Evaluation

**Project Number:** 3616166052.04.03

**Location:** FPC4-060816-SED-G

**Depth:** NA

**Sample Number:** NA

**Material Description:** Olive Greenish Brown SILT with large amount of organics

**Sample Date:** 6/9/16

**Date Received:** 6/16/16

**PL:** ND

**LL:** ND

**PI:** ND

**USCS Classification:** ML (visual)

**AASHTO Classification:** ND

**Grain Size Test Method:** ASTM D 422-63(07)E2014

**Testing Remarks:** ND = Not determined    Organic Contents = 72.2%

Specific Gravity is assumed

Sample is undersized    vis = visual

**Tested By:** CS

**Test Date:** 6/20/16

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
79.53	0.00	0.00	#4	0.00	100.0
			#10	0.09	99.9
48.84	0.00	0.00	#20	0.12	99.6
			#40	0.22	99.4
			#60	0.30	99.3
			#200	0.38	99.1
			#230	1.03	97.8
			#270	1.16	97.5

**Hydrometer Test Data**

Hydrometer test uses material passing #200

Percent passing #200 based upon complete sample = 99.1

Weight of hydrometer sample = 48.84

Hygroscopic moisture correction:

Moist weight and tare = 27.39

Dry weight and tare = 26.94

Tare weight = 15.54

Hygroscopic moisture = 3.9%

Table of composite correction values:

Temp., deg. C:            11.1            29.1

Comp. corr.:              -9.5            -5.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation:  $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	44.5	37.8	0.0131	45.5	8.8	0.0275	78.8
5.00	22.3	39.0	32.3	0.0131	40.0	9.7	0.0182	67.4
15.00	22.3	32.0	25.3	0.0131	33.0	10.9	0.0111	52.8
30.00	22.4	25.0	18.3	0.0131	26.0	12.0	0.0083	38.2
60.00	22.4	21.0	14.3	0.0131	22.0	12.7	0.0060	29.9
250.00	22.3	14.5	7.8	0.0131	15.5	13.8	0.0031	16.3
1440.00	21.6	10.5	3.6	0.0132	11.5	14.4	0.0013	7.6



**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.5	0.3	0.9	73.0	26.1	99.1

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.0018	0.0028	0.0037	0.0060	0.0086	0.0105	0.0135	0.0284	0.0326	0.0376	0.0448

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
0.02	7.46	1.48

## **APPENDIX E2**

### **Work Order 4A-020: Data Sheets**





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-01

Date Reviewed: 4/13/2017

SAMPLE ID: CJ03\_10082016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: ML Gray SILT w/ Organic Material

Pan ID No.	JAR
Air Dry Start Date/Time	3/12/2017 12:10
Air Dry End Date/Time	3/13/2017 7:30
(A) TOTAL AIR-DRIED WEIGHT (g)	151.13
(B) SPLIT AIR-DRIED WEIGHT (g)	101.50
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/13/2017
Sieve Analysis	3/16/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	26.13
WEIGHT DRY SOIL & TARE (g)	24.62
Tare #: <u>81</u> WEIGHT TARE (g)	15.51
(C) WEIGHT AIR-DRIED SOIL (g)	10.62
(D) WEIGHT OVEN-DRIED SOIL (g)	9.11
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.8578
CORRECTED SPLIT WEIGHT (B x E)	87.07

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	129.68
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	11.2%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.29	99.8%
5.4.143	#20	0.44	99.3%
5.4.58	#40	1.02	98.6%
5.4.145	#60	1.27	98.3%
5.4.162	#200	2.16	97.3%
5.4.181	#230	2.71	96.7%
5.4.189	#270	3.13	96.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-01 **Review Date** HS  
**Sample ID:** CJ03\_10082016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.31	363.42	177.44	151.13	185.98	123.1%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/12/2017	12:10
A) Tare No.				18	
B) Tare Weight, grams				15.72	
C) Wet Soil + Tare, grams - see comment				60.08	
D) Dry Soil + Tare, grams (initial)				34.99	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/13/2017	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )				34.98	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				3/13/2017	ND
F) Weight of Dry Soil, grams [E - B]				19.27	
G) Weight of Moisture, grams [C - E]				25.09	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				130.2%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/16/2017 4:50	
Date/Time End		4/16/2017 5:00	
I) Tare No.		14	
J) Weight of Tare, grams		52.66	
K) Weight of Oven-Dried Soil + Tare, grams		70.18	
L) Weight of Oven- Dried Soil, grams [K - J]		17.52	
M) Weight of Ignited Soil + Tare, grams		68.21	
N) Ash, grams [M - J]		15.56	
O) Ash Content, % [N *100 / L]		88.8%	
P) Organic Matter, % [100 - O]		11.2%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-02

Date Reviewed: 4/13/2017

SAMPLE ID: CJ06\_10082016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: ML Gray SILT w/ Organic Material

Pan ID No.	C-16	
Air Dry Start Date/Time	3/14/2017	ND
Air Dry End Date/Time	3/16/2017	15:14
(A) TOTAL AIR-DRIED WEIGHT (g)	174.44	
(B) SPLIT AIR-DRIED WEIGHT (g)	101.18	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	26.01	
WEIGHT DRY SOIL & TARE (g)	24.88	
Tare #: <u>55</u>	WEIGHT TARE (g)	15.52
(C) WEIGHT AIR-DRIED SOIL (g)	10.49	
(D) WEIGHT OVEN-DRIED SOIL (g)	9.36	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.8923	
CORRECTED SPLIT WEIGHT (B x E)	90.28	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	155.65
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	12.3%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.20	3/8"	0.00	100.0%
5.4.52	#4	0.00	100.0%
5.4.58G	(G) #10	0.00	100.0%
5.4.144	#20	0.01	100.0%
5.4.108	#40	0.18	99.8%
5.4.146	#60	0.45	99.5%
5.4.187	#200	1.65	98.2%
5.4.188	#230	2.30	97.5%
5.4.130	#270	2.82	96.9%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-02 **Review Date** HS  
**Sample ID:** CJ06\_10082016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	25.26	317.86	143.52	118.26	174.34	147%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				53	
B) Tare Weight, grams				15.41	
C) Wet Soil + Tare, grams - see comment				51.04	
D) Dry Soil + Tare, grams (initial)				29.94	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				ND	ND
F) Weight of Dry Soil, grams [E - B]				14.53	
G) Weight of Moisture, grams [C - E]				21.10	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				145.2%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/16/2017 4:45	
Date/Time End		4/16/2017 9:51	
I) Tare No.		11	
J) Weight of Tare, grams		51.75	
K) Weight of Oven-Dried Soil + Tare, grams		65.99	
L) Weight of Oven- Dried Soil, grams [K - J]		14.24	
M) Weight of Ignited Soil + Tare, grams		64.24	
N) Ash, grams [M - J]		12.49	
O) Ash Content, % [N *100 / L]		87.7%	
P) Organic Matter, % [100 - O]		12.3%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-03

Date Reviewed: 4/13/2017

SAMPLE ID: CJ11\_10072016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray LEAN CLAY

Pan ID No.	LL-6	
Air Dry Start Date/Time	3/12/2017	12:19
Air Dry End Date/Time	3/14/2017	8:09
(A) TOTAL AIR-DRIED WEIGHT (g)	124.84	
(B) SPLIT AIR-DRIED WEIGHT (g)	100.63	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	26.2
WEIGHT DRY SOIL & TARE (g)	24.79
Tare #: <u>31</u> WEIGHT TARE (g)	15.52
(C) WEIGHT AIR-DRIED SOIL (g)	10.68
(D) WEIGHT OVEN-DRIED SOIL (g)	9.27
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.868
CORRECTED SPLIT WEIGHT (B x E)	87.35

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	108.36
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	11.3%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.15	99.8%
5.4.58	#40	0.37	99.6%
5.4.145	#60	0.74	99.2%
5.4.162	#200	2.64	97.0%
5.4.181	#230	3.63	95.8%
5.4.189	#270	4.11	95.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-03 **Review Date** HS  
**Sample ID:** CJ11\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.16	376.57	151.6	125.44	224.97	179%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/22/2017	16:50
A) Tare No.				10	
B) Tare Weight, grams				15.62	
C) Wet Soil + Tare, grams - see comment				62.70	
D) Dry Soil + Tare, grams (initial)				36.01	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/23/2017	8:30
E) Dry Soil + Tare, grams (1 Hr. additional heating )				36.00	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				3/23/2017	9:30
F) Weight of Dry Soil, grams [E - B]				20.39	
G) Weight of Moisture, grams [C - E]				26.69	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				130.9%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/16/2017 4:40	
Date/Time End		ND ND	
I) Tare No.		12	
J) Weight of Tare, grams		52.40	
K) Weight of Oven-Dried Soil + Tare, grams		72.87	
L) Weight of Oven- Dried Soil, grams [K - J]		20.48	
M) Weight of Ignited Soil + Tare, grams		70.55	
N) Ash, grams [M - J]		18.16	
O) Ash Content, % [N *100 / L]		88.7%	
P) Organic Matter, % [100 - O]		11.3%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-04

Date Reviewed: 4/13/2017

SAMPLE ID: CJ17\_10082016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray CLAY

Pan ID No.	46
Air Dry Start Date/Time	3/12/2017 13:52
Air Dry End Date/Time	3/14/2017 7:46
(A) TOTAL AIR-DRIED WEIGHT (g)	92.39
(B) SPLIT AIR-DRIED WEIGHT (g)	82.67
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.8
WEIGHT DRY SOIL & TARE (g)	24.11
Tare #: <u>07</u> WEIGHT TARE (g)	15.49
(C) WEIGHT AIR-DRIED SOIL (g)	10.31
(D) WEIGHT OVEN-DRIED SOIL (g)	8.62
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.8361
CORRECTED SPLIT WEIGHT (B x E)	69.12

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	77.25
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	11.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.72	99.0%
5.4.197	#40	2.84	95.9%
5.4.198	#60	5.19	92.5%
5.4.199	#200	11.95	82.7%
5.4.200	#230	15.58	77.5%
5.4.201	#270	19.04	72.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-04 **Review Date** HS  
**Sample ID:** CJ17\_10082016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.01	315.35	118.4	92.39	196.95	213%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/10/2017	8:30
A) Tare No.				89.00	
B) Tare Weight, grams				15.65	
C) Wet Soil + Tare, grams - see comment				56.06	
D) Dry Soil + Tare, grams (initial)				31.27	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/11/2017	9:00
E) Dry Soil + Tare, grams (1 Hr. additional heating )				31.25	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				3/12/2017	8:30
F) Weight of Dry Soil, grams [E - B]				15.60	
G) Weight of Moisture, grams [C - E]				24.81	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				159.0%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/16/2017 4:35	
Date/Time End		4/16/2017 9:40	
I) Tare No.		1C	
J) Weight of Tare, grams		54.38	
K) Weight of Oven-Dried Soil + Tare, grams		69.97	
L) Weight of Oven- Dried Soil, grams [K - J]		15.59	
M) Weight of Ignited Soil + Tare, grams		68.14	
N) Ash, grams [M - J]		13.76	
O) Ash Content, % [N *100 / L]		88.3%	
P) Organic Matter, % [100 - O]		11.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-05

Date Reviewed: 4/13/2017

SAMPLE ID: CJ18\_10082016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray CLAY

Pan ID No.	24
Air Dry Start Date/Time	3/12/2017 12:48
Air Dry End Date/Time	3/14/2014 9:23
(A) TOTAL AIR-DRIED WEIGHT (g)	136.82
(B) SPLIT AIR-DRIED WEIGHT (g)	100.80
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	26.09
WEIGHT DRY SOIL & TARE (g)	25.04
Tare #: <u>76</u> WEIGHT TARE (g)	15.65
(C) WEIGHT AIR-DRIED SOIL (g)	10.44
(D) WEIGHT OVEN-DRIED SOIL (g)	9.39
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.8994
CORRECTED SPLIT WEIGHT (B x E)	90.66

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	123.06
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	10.1%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	1.51	98.3%
5.4.58	#40	5.85	93.5%
5.4.145	#60	10.24	88.7%
5.4.162	#200	23.75	73.8%
5.4.181	#230	26.61	70.6%
5.4.189	#270	29.18	67.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-05 **Review Date** HS  
**Sample ID:** CJ18\_10082016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26	396.52	162.82	136.82	233.7	171%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				24	
B) Tare Weight, grams				15.61	
C) Wet Soil + Tare, grams - see comment				62.79	
D) Dry Soil + Tare, grams (initial)				35.19	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				ND	ND
F) Weight of Dry Soil, grams [E - B]				19.58	
G) Weight of Moisture, grams [C - E]				27.60	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				141.0%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/16/2017 4:30	
Date/Time End		4/16/2017 9:38	
I) Tare No.		10	
J) Weight of Tare, grams		52.82	
K) Weight of Oven-Dried Soil + Tare, grams		71.77	
L) Weight of Oven- Dried Soil, grams [K - J]		18.95	
M) Weight of Ignited Soil + Tare, grams		69.86	
N) Ash, grams [M - J]		17.04	
O) Ash Content, % [N *100 / L]		89.9%	
P) Organic Matter, % [100 - O]		10.1%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-06

Date Reviewed: 4/13/2017

SAMPLE ID: VN51\_10172016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray CLAY

Pan ID No.	C-120
Air Dry Start Date/Time	3/12/2017 13:01
Air Dry End Date/Time	3/14/2017 7:26
(A) TOTAL AIR-DRIED WEIGHT (g)	83.42
(B) SPLIT AIR-DRIED WEIGHT (g)	71.48
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.51
WEIGHT DRY SOIL & TARE (g)	25.17
Tare #: <u>75</u> WEIGHT TARE (g)	15.49
(C) WEIGHT AIR-DRIED SOIL (g)	10.02
(D) WEIGHT OVEN-DRIED SOIL (g)	9.68
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9661
CORRECTED SPLIT WEIGHT (B x E)	69.06

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	80.64
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	15.6%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.57	99.3%
5.4.138	(G) #10	1.27	98.4%
5.4.143	#20	4.10	92.6%
5.4.58	#40	9.83	84.4%
5.4.145	#60	13.45	79.3%
5.4.162	#200	19.85	70.1%
5.4.181	#230	22.16	66.8%
5.4.189	#270	24.49	63.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-06 **Review Date** HS  
**Sample ID:** VN51\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.56	257.12	109.98	83.42	147.14	176.4%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				32	
B) Tare Weight, grams				15.41	
C) Wet Soil + Tare, grams - see comment				51.88	
D) Dry Soil + Tare, grams (initial)				31.16	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				15.75	
G) Weight of Moisture, grams [C - E]				20.72	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				131.6%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/15/2017 4:00	
Date/Time End		4/15/2017 9:00	
I) Tare No.		10	
J) Weight of Tare, grams		52.82	
K) Weight of Oven-Dried Soil + Tare, grams		68.75	
L) Weight of Oven- Dried Soil, grams [K - J]		15.93	
M) Weight of Ignited Soil + Tare, grams		66.26	
N) Ash, grams [M - J]		13.44	
O) Ash Content, % [N *100 / L]		84.4%	
P) Organic Matter, % [100 - O]		15.6%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 23-07  
 SAMPLE ID: VN52\_10172016\_SED  
 SAMPLE DESCRIPTION: CL Gray CLAY

Date Reviewed: 4/13/2017  
 Reviewed By: HS

Pan ID No.	C-306	
Air Dry Start Date/Time	3/12/2017	13:26
Air Dry End Date/Time	3/14/2017	7:50
(A) TOTAL AIR-DRIED WEIGHT (g)	142.95	
(B) SPLIT AIR-DRIED WEIGHT (g)	100.54	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	25.92	
WEIGHT DRY SOIL & TARE (g)	25.56	
Tare #: <u>06</u>	WEIGHT TARE (g)	15.44
(C) WEIGHT AIR-DRIED SOIL (g)	10.48	
(D) WEIGHT OVEN-DRIED SOIL (g)	10.12	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9656	
CORRECTED SPLIT WEIGHT (B x E)	97.08	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	138.33
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	14.9%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	1.25	99.1%
5.4.76B	#4	3.28	97.6%
5.4.138	(G) #10	8.59	93.8%
5.4.143	#20	4.96	89.0%
5.4.58	#40	10.31	83.8%
5.4.145	#60	14.25	80.0%
5.4.162	#200	23.88	70.7%
5.4.181	#230	28.63	66.1%
5.4.189	#270	33.27	61.6%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-07 **Review Date** HS  
**Sample ID:** VN52\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	25.95	355.61	168.9	142.95	186.71	130.6%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							ND	ND
A) Tare No.							22	
B) Tare Weight, grams							15.42	
C) Wet Soil + Tare, grams - see comment							59.82	
D) Dry Soil + Tare, grams (initial)							35.69	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							ND	ND
F) Weight of Dry Soil, grams [E - B]							20.27	
G) Weight of Moisture, grams [C - E]							24.13	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							119.0%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/15/2017	4:05		
Date/Time End			4/15/2017	9:30		
I) Tare No.			21			
J) Weight of Tare, grams			52.33			
K) Weight of Oven-Dried Soil + Tare, grams			72.07			
L) Weight of Oven- Dried Soil, grams [K - J]			19.74			
M) Weight of Ignited Soil + Tare, grams			69.13			
N) Ash, grams [M - J]			16.80			
O) Ash Content, % [N *100 / L]			85.1%			
P) Organic Matter, % [100 - O]			14.9%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-08

Date Reviewed: 4/13/2017

SAMPLE ID: VN53\_10172016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	38	
Air Dry Start Date/Time	3/12/2017	12:56
Air Dry End Date/Time	3/14/2017	7:49
(A) TOTAL AIR-DRIED WEIGHT (g)	110.84	
(B) SPLIT AIR-DRIED WEIGHT (g)	72.63	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		26.54	
WEIGHT DRY SOIL & TARE (g)		26.24	
Tare #:	<u>17</u>	WEIGHT TARE (g)	15.75
(C) WEIGHT AIR-DRIED SOIL (g)		10.79	
(D) WEIGHT OVEN-DRIED SOIL (g)		10.49	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9722	
CORRECTED SPLIT WEIGHT (B x E)		70.61	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	107.76
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	9.0%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	1.35	98.1%
5.4.197	#40	2.79	96.0%
5.4.198	#60	3.94	94.4%
5.4.199	#200	7.55	89.3%
5.4.200	#230	10.11	85.7%
5.4.201	#270	12.53	82.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-08 **Review Date** HS  
**Sample ID:** VN53\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.76	231.56	110.84	84.08	120.72	144%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							ND	ND
A) Tare No.							44	
B) Tare Weight, grams							15.62	
C) Wet Soil + Tare, grams - see comment							60.67	
D) Dry Soil + Tare, grams (initial)							38.96	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							ND	ND
F) Weight of Dry Soil, grams [E - B]							23.34	
G) Weight of Moisture, grams [C - E]							21.71	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							93.0%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/15/2017	4:08		
Date/Time End			4/15/2017	9:40		
I) Tare No.			3			
J) Weight of Tare, grams			51.35			
K) Weight of Oven-Dried Soil + Tare, grams			74.78			
L) Weight of Oven- Dried Soil, grams [K - J]			23.43			
M) Weight of Ignited Soil + Tare, grams			72.67			
N) Ash, grams [M - J]			21.31			
O) Ash Content, % [N *100 / L]			91.0%			
P) Organic Matter, % [100 - O]			9.0%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-09

Date Reviewed: 4/13/2017

SAMPLE ID: VN54\_10172016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray CLAY

Pan ID No.	29
Air Dry Start Date/Time	3/12/2017 12:52
Air Dry End Date/Time	3/14/2017 7:19
(A) TOTAL AIR-DRIED WEIGHT (g)	169.50
(B) SPLIT AIR-DRIED WEIGHT (g)	100.84
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.75
WEIGHT DRY SOIL & TARE (g)	24.67
Tare #: <u>15</u> WEIGHT TARE (g)	15.46
(C) WEIGHT AIR-DRIED SOIL (g)	10.29
(D) WEIGHT OVEN-DRIED SOIL (g)	9.21
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.895
CORRECTED SPLIT WEIGHT (B x E)	90.25

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	151.7
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	11.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	2.97	96.7%
5.4.197	#40	7.21	92.0%
5.4.198	#60	10.79	88.0%
5.4.199	#200	19.15	78.8%
5.4.200	#230	22.64	74.9%
5.4.201	#270	26.12	71.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-09 **Review Date** HS  
**Sample ID:** VN54\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.93	369.93	169.5	142.57	200.43	141%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							ND	ND
A) Tare No.							80.00	
B) Tare Weight, grams							15.63	
C) Wet Soil + Tare, grams - see comment							61.78	
D) Dry Soil + Tare, grams (initial)							36.47	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )							36.47	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							4/17/2017	5:00
F) Weight of Dry Soil, grams [E - B]							20.84	
G) Weight of Moisture, grams [C - E]							25.31	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							121.4%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/17/2017	5:05		
Date/Time End			4/17/2017	11:35		
I) Tare No.			5			
J) Weight of Tare, grams			52.74			
K) Weight of Oven-Dried Soil + Tare, grams			73.01			
L) Weight of Oven- Dried Soil, grams [K - J]			20.27			
M) Weight of Ignited Soil + Tare, grams			70.63			
N) Ash, grams [M - J]			17.89			
O) Ash Content, % [N *100 / L]			88.3%			
P) Organic Matter, % [100 - O]			11.7%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 23-10  
 SAMPLE ID: VN55\_10172016\_SED  
 SAMPLE DESCRIPTION: CL Gray CLAY

Date Reviewed: 4/13/2017  
 Reviewed By: HS

Pan ID No.	3	
Air Dry Start Date/Time	3/12/2017	11:25
Air Dry End Date/Time	3/14/2017	8:36
(A) TOTAL AIR-DRIED WEIGHT (g)	117.93	
(B) SPLIT AIR-DRIED WEIGHT (g)	102.15	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		25.94	
WEIGHT DRY SOIL & TARE (g)		25.59	
Tare #:	<u>90</u>	WEIGHT TARE (g)	15.52
(C) WEIGHT AIR-DRIED SOIL (g)		10.42	
(D) WEIGHT OVEN-DRIED SOIL (g)		10.07	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9664	
CORRECTED SPLIT WEIGHT (B x E)		98.72	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	113.97
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	16.4%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.92	99.1%
5.4.58	#40	2.61	97.4%
5.4.145	#60	5.31	94.6%
5.4.162	#200	12.21	87.6%
5.4.181	#230	15.05	84.8%
5.4.189	#270	17.91	81.9%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-10 **Review Date** HS  
**Sample ID:** VN55\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.51	325.41	144.44	117.93	180.97	153.5%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							ND	ND
A) Tare No.							65	
B) Tare Weight, grams							15.43	
C) Wet Soil + Tare, grams - see comment							57.37	
D) Dry Soil + Tare, grams (initial)							32.08	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							ND	ND
F) Weight of Dry Soil, grams [E - B]							16.65	
G) Weight of Moisture, grams [C - E]							25.29	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							151.9%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/15/2017	4:09		
Date/Time End			4/15/2017	9:15		
I) Tare No.			20			
J) Weight of Tare, grams			51.28			
K) Weight of Oven-Dried Soil + Tare, grams			67.28			
L) Weight of Oven- Dried Soil, grams [K - J]			16.00			
M) Weight of Ignited Soil + Tare, grams			64.65			
N) Ash, grams [M - J]			13.37			
O) Ash Content, % [N *100 / L]			83.6%			
P) Organic Matter, % [100 - O]			16.4%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-11

Date Reviewed: 4/13/2017

SAMPLE ID: VN57\_10152016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	20	
Air Dry Start Date/Time	3/12/2017	11:29
Air Dry End Date/Time	3/14/2017	9:15
(A) TOTAL AIR-DRIED WEIGHT (g)	180.51	
(B) SPLIT AIR-DRIED WEIGHT (g)	103.83	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		26.16	
WEIGHT DRY SOIL & TARE (g)		25.93	
Tare #:	<u>63</u>	WEIGHT TARE (g)	15.67
(C) WEIGHT AIR-DRIED SOIL (g)		10.49	
(D) WEIGHT OVEN-DRIED SOIL (g)		10.26	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9781	
CORRECTED SPLIT WEIGHT (B x E)		101.56	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	176.56
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	12.3%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.44	99.5%
5.4.58	#40	0.63	99.3%
5.4.145	#60	1.87	98.1%
5.4.162	#200	3.87	96.0%
5.4.181	#230	17.12	82.1%
5.4.189	#270	27.71	71.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-11 **Review Date** HS  
**Sample ID:** VN57\_10152016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.69	417.28	207.2	180.51	210.08	116.4%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/16/2017	4:00
A) Tare No.				16	
B) Tare Weight, grams				15.67	
C) Wet Soil + Tare, grams - see comment				49.51	
D) Dry Soil + Tare, grams (initial)				32.08	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/17/2017	5:15
E) Dry Soil + Tare, grams (1 Hr. additional heating )				32.06	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/17/2017	ND
F) Weight of Dry Soil, grams [E - B]				16.41	
G) Weight of Moisture, grams [C - E]				17.43	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				106.2%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/17/2017 6:50	
Date/Time End		4/17/2017 11:04	
I) Tare No.		14	
J) Weight of Tare, grams		52.59	
K) Weight of Oven-Dried Soil + Tare, grams		68.98	
L) Weight of Oven- Dried Soil, grams [K - J]		16.38	
M) Weight of Ignited Soil + Tare, grams		66.96	
N) Ash, grams [M - J]		14.37	
O) Ash Content, % [N *100 / L]		87.7%	
P) Organic Matter, % [100 - O]		12.3%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-12

Date Reviewed: 4/13/2017

SAMPLE ID: VN58\_10152016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	C-19	
Air Dry Start Date/Time	3/12/2017	12:31
Air Dry End Date/Time	3/14/2017	9:06
(A) TOTAL AIR-DRIED WEIGHT (g)	167.36	
(B) SPLIT AIR-DRIED WEIGHT (g)	100.31	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/30/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)		25.54
WEIGHT DRY SOIL & TARE (g)		25.21
Tare #:	<u>88</u>	WEIGHT TARE (g)
(C) WEIGHT AIR-DRIED SOIL (g)		10.13
(D) WEIGHT OVEN-DRIED SOIL (g)		9.8
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9674
CORRECTED SPLIT WEIGHT (B x E)		97.04

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	163.50
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	13.6%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	22.93	86.0%
5.4.194	#4	36.78	77.5%
5.4.195	(G) #10	49.05	70.0%
5.4.196	#20	8.30	64.0%
5.4.197	#40	23.75	52.9%
5.4.198	#60	34.44	45.2%
5.4.199	#200	49.39	34.4%
5.4.200	#230	52.73	32.0%
5.4.201	#270	55.09	30.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-12 **Review Date** HS  
**Sample ID:** VN58\_10152016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	25.58	417.93	192.94	167.36	224.99	134.4%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							ND	ND
A) Tare No.							42	
B) Tare Weight, grams							15.48	
C) Wet Soil + Tare, grams - see comment							69.01	
D) Dry Soil + Tare, grams (initial)							35.96	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							ND	ND
F) Weight of Dry Soil, grams [E - B]							20.48	
G) Weight of Moisture, grams [C - E]							33.05	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							161.4%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/15/2017	4:12		
Date/Time End			4/15/2017	9:05		
I) Tare No.			13			
J) Weight of Tare, grams			54.35			
K) Weight of Oven-Dried Soil + Tare, grams			78.56			
L) Weight of Oven- Dried Soil, grams [K - J]			24.21			
M) Weight of Ignited Soil + Tare, grams			75.28			
N) Ash, grams [M - J]			20.93			
O) Ash Content, % [N *100 / L]			86.4%			
P) Organic Matter, % [100 - O]			13.6%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-13

Date Reviewed: 4/13/2017

SAMPLE ID: VN67\_10172016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray CLAY

Pan ID No.	C-17	
Air Dry Start Date/Time	3/12/2017	13:30
Air Dry End Date/Time	3/14/2017	8:47
(A) TOTAL AIR-DRIED WEIGHT (g)	74.13	
(B) SPLIT AIR-DRIED WEIGHT (g)	63.03	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	25.62	
WEIGHT DRY SOIL & TARE (g)	25.31	
Tare #: <u>94</u>	WEIGHT TARE (g)	15.48
(C) WEIGHT AIR-DRIED SOIL (g)	10.14	
(D) WEIGHT OVEN-DRIED SOIL (g)	9.83	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9694	
CORRECTED SPLIT WEIGHT (B x E)	61.1	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	71.88
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	10.9%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.55	99.2%
5.4.143	#20	0.73	98.0%
5.4.58	#40	3.22	94.0%
5.4.145	#60	5.62	90.1%
5.4.162	#200	24.59	59.3%
5.4.181	#230	29.80	50.8%
5.4.189	#270	33.51	44.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-13 **Review Date** HS  
**Sample ID:** VN67\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.47	220.58	100.6	74.13	119.98	162%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				48	
B) Tare Weight, grams				15.55	
C) Wet Soil + Tare, grams - see comment				58.44	
D) Dry Soil + Tare, grams (initial)				38.84	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				23.29	
G) Weight of Moisture, grams [C - E]				19.60	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				84.2%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/15/2017 4:15	
Date/Time End		4/15/2017 9:20	
I) Tare No.		11	
J) Weight of Tare, grams		51.75	
K) Weight of Oven-Dried Soil + Tare, grams		74.84	
L) Weight of Oven- Dried Soil, grams [K - J]		23.10	
M) Weight of Ignited Soil + Tare, grams		72.33	
N) Ash, grams [M - J]		20.58	
O) Ash Content, % [N *100 / L]		89.1%	
P) Organic Matter, % [100 - O]		10.9%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-14

Date Reviewed: 4/13/2017

SAMPLE ID: VN68\_10172016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray CLAY

Pan ID No.	C-2	
Air Dry Start Date/Time	3/12/2017	12:34
Air Dry End Date/Time	3/14/2017	8:39
(A) TOTAL AIR-DRIED WEIGHT (g)	84.89	
(B) SPLIT AIR-DRIED WEIGHT (g)	70.81	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	25.64	
WEIGHT DRY SOIL & TARE (g)	24.6	
Tare #: <u>04</u>	WEIGHT TARE (g)	15.37
(C) WEIGHT AIR-DRIED SOIL (g)	10.27	
(D) WEIGHT OVEN-DRIED SOIL (g)	9.23	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.8987	
CORRECTED SPLIT WEIGHT (B x E)	63.64	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	76.29
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	17.2%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	1.05	98.4%
5.4.197	#40	4.89	92.3%
5.4.198	#60	8.40	86.8%
5.4.199	#200	15.09	76.3%
5.4.200	#230	17.36	72.7%
5.4.201	#270	19.88	68.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-14 **Review Date** HS  
**Sample ID:** VN68\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.17	352.98	108.06	81.89	244.92	299%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				29	
B) Tare Weight, grams				15.26	
C) Wet Soil + Tare, grams - see comment				54.70	
D) Dry Soil + Tare, grams (initial)				28.76	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				13.50	
G) Weight of Moisture, grams [C - E]				25.94	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				192.1%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/15/2017 4:20	
Date/Time End		4/15/2017 9:05	
I) Tare No.		6	
J) Weight of Tare, grams		50.64	
K) Weight of Oven-Dried Soil + Tare, grams		63.75	
L) Weight of Oven- Dried Soil, grams [K - J]		13.11	
M) Weight of Ignited Soil + Tare, grams		61.49	
N) Ash, grams [M - J]		10.86	
O) Ash Content, % [N *100 / L]		82.8%	
P) Organic Matter, % [100 - O]		17.2%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-15

Date Reviewed: 4/13/2017

SAMPLE ID: VN69\_10172016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray CLAY

Pan ID No.	23	
Air Dry Start Date/Time	3/12/2017	11:50
Air Dry End Date/Time	3/14/2017	8:35
(A) TOTAL AIR-DRIED WEIGHT (g)	182.02	
(B) SPLIT AIR-DRIED WEIGHT (g)	101.70	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		25.86	
WEIGHT DRY SOIL & TARE (g)		25.46	
Tare #:	<u>26</u>	WEIGHT TARE (g)	15.53
(C) WEIGHT AIR-DRIED SOIL (g)		10.33	
(D) WEIGHT OVEN-DRIED SOIL (g)		9.93	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9613	
CORRECTED SPLIT WEIGHT (B x E)		97.76	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	175.11
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	9.0%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	1.82	99.0%
5.4.138	(G) #10	3.35	98.1%
5.4.143	#20	0.78	97.3%
5.4.58	#40	2.03	96.1%
5.4.145	#60	3.76	94.3%
5.4.162	#200	20.27	77.7%
5.4.181	#230	24.42	73.6%
5.4.189	#270	27.08	70.9%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-15 **Review Date** HS  
**Sample ID:** VN69\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.59	365.77	208.61	182.02	157.16	86.3%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				52	
B) Tare Weight, grams				15.54	
C) Wet Soil + Tare, grams - see comment				61.60	
D) Dry Soil + Tare, grams (initial)				39.90	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				24.36	
G) Weight of Moisture, grams [C - E]				21.70	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				89.1%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/15/2017 4:25	
Date/Time End		4/15/2017 9:00	
I) Tare No.		18	
J) Weight of Tare, grams		53.87	
K) Weight of Oven-Dried Soil + Tare, grams		78.27	
L) Weight of Oven- Dried Soil, grams [K - J]		24.40	
M) Weight of Ignited Soil + Tare, grams		76.07	
N) Ash, grams [M - J]		22.20	
O) Ash Content, % [N *100 / L]		91.0%	
P) Organic Matter, % [100 - O]		9.0%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-16

Date Reviewed: 4/13/2017

SAMPLE ID: VN70\_10172016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray CLAY

Pan ID No.	40
Air Dry Start Date/Time	3/12/2017 11:34
Air Dry End Date/Time	3/14/2017 8:45
(A) TOTAL AIR-DRIED WEIGHT (g)	160.91
(B) SPLIT AIR-DRIED WEIGHT (g)	100.45
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.97
WEIGHT DRY SOIL & TARE (g)	25.23
Tare #: <u>72</u> WEIGHT TARE (g)	15.51
(C) WEIGHT AIR-DRIED SOIL (g)	10.46
(D) WEIGHT OVEN-DRIED SOIL (g)	9.72
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9293
CORRECTED SPLIT WEIGHT (B x E)	93.35

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	149.56
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	11.6%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.20	3/8"	0.00	100.0%
5.4.52	#4	0.00	100.0%
5.4.58G	(G) #10	0.34	99.8%
5.4.144	#20	4.02	95.5%
5.4.108	#40	7.02	92.3%
5.4.146	#60	9.59	89.5%
5.4.187	#200	23.14	75.0%
5.4.188	#230	26.91	71.0%
5.4.130	#270	29.76	68.0%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-16 **Review Date** HS  
**Sample ID:** VN70\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.21	359.78	187.12	160.91	172.66	107.3%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				38	
B) Tare Weight, grams				15.43	
C) Wet Soil + Tare, grams - see comment				68.94	
D) Dry Soil + Tare, grams (initial)				39.83	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				ND	ND
F) Weight of Dry Soil, grams [E - B]				24.40	
G) Weight of Moisture, grams [C - E]				29.11	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				119.3%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/15/2017 4:35	
Date/Time End		4/15/2017 9:35	
I) Tare No.		12	
J) Weight of Tare, grams		51.81	
K) Weight of Oven-Dried Soil + Tare, grams		75.61	
L) Weight of Oven- Dried Soil, grams [K - J]		23.80	
M) Weight of Ignited Soil + Tare, grams		72.86	
N) Ash, grams [M - J]		21.05	
O) Ash Content, % [N *100 / L]		88.4%	
P) Organic Matter, % [100 - O]		11.6%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-17

Date Reviewed: 4/13/2017

SAMPLE ID: VN71\_10172016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	16	
Air Dry Start Date/Time	3/12/2017	ND
Air Dry End Date/Time	3/14/2017	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	147.87	
(B) SPLIT AIR-DRIED WEIGHT (g)	100.33	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		25.62	
WEIGHT DRY SOIL & TARE (g)		25.02	
Tare #:	<u>05</u>	WEIGHT TARE (g)	15.55
(C) WEIGHT AIR-DRIED SOIL (g)		10.07	
(D) WEIGHT OVEN-DRIED SOIL (g)		9.47	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9404	
CORRECTED SPLIT WEIGHT (B x E)		94.35	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	139.06
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	13.8%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	4.25	95.5%
5.4.197	#40	6.22	93.4%
5.4.198	#60	8.65	90.8%
5.4.199	#200	15.65	83.4%
5.4.200	#230	19.26	79.6%
5.4.201	#270	23.33	75.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-17 **Review Date** HS  
**Sample ID:** VN71\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	25.22	355.07	173.09	147.87	181.98	123.1%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				21	
B) Tare Weight, grams				15.50	
C) Wet Soil + Tare, grams - see comment				62.14	
D) Dry Soil + Tare, grams (initial)				36.03	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )				36.01	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				ND	ND
F) Weight of Dry Soil, grams [E - B]				20.53	
G) Weight of Moisture, grams [C - E]				26.11	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				127.2%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/17/2017 11:00	
Date/Time End		4/17/2017 17:00	
I) Tare No.		23	
J) Weight of Tare, grams		52.70	
K) Weight of Oven-Dried Soil + Tare, grams		73.29	
L) Weight of Oven- Dried Soil, grams [K - J]		20.59	
M) Weight of Ignited Soil + Tare, grams		70.45	
N) Ash, grams [M - J]		17.76	
O) Ash Content, % [N *100 / L]		86.2%	
P) Organic Matter, % [100 - O]		13.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-18

Date Reviewed: 4/13/2017

SAMPLE ID: VN72\_10152016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	C-7	
Air Dry Start Date/Time	3/12/2017	12:39
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	126.54	
(B) SPLIT AIR-DRIED WEIGHT (g)	100.63	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	25.93	
WEIGHT DRY SOIL & TARE (g)	25.86	
Tare #: <u>64</u>	WEIGHT TARE (g)	15.45
(C) WEIGHT AIR-DRIED SOIL (g)	10.48	
(D) WEIGHT OVEN-DRIED SOIL (g)	10.41	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9933	
CORRECTED SPLIT WEIGHT (B x E)	99.96	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	125.69
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	16.1%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	2.08	97.9%
5.4.197	#40	5.78	94.2%
5.4.198	#60	9.22	90.8%
5.4.199	#200	17.92	82.1%
5.4.200	#230	21.63	78.4%
5.4.201	#270	24.93	75.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-18 **Review Date** HS  
**Sample ID:** VN72\_10152016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	25.65	378.63	152.19	126.54	226.44	179%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				58	
B) Tare Weight, grams				15.39	
C) Wet Soil + Tare, grams - see comment				55.74	
D) Dry Soil + Tare, grams (initial)				31.81	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				ND	ND
F) Weight of Dry Soil, grams [E - B]				16.42	
G) Weight of Moisture, grams [C - E]				23.93	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				145.7%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/15/2017 4:30	
Date/Time End		4/15/2017 10:00	
I) Tare No.		2	
J) Weight of Tare, grams		51.81	
K) Weight of Oven-Dried Soil + Tare, grams		67.87	
L) Weight of Oven- Dried Soil, grams [K - J]		16.05	
M) Weight of Ignited Soil + Tare, grams		65.29	
N) Ash, grams [M - J]		13.47	
O) Ash Content, % [N *100 / L]		83.9%	
P) Organic Matter, % [100 - O]		16.1%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-19

Date Reviewed: 4/13/2017

SAMPLE ID: VN73\_10182016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	36
Air Dry Start Date/Time	3/12/2017 11:35
Air Dry End Date/Time	3/14/2017 9:00
(A) TOTAL AIR-DRIED WEIGHT (g)	139.50
(B) SPLIT AIR-DRIED WEIGHT (g)	101.14
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	23.61
WEIGHT DRY SOIL & TARE (g)	22.59
Tare #: <u>98</u> WEIGHT TARE (g)	11.13
(C) WEIGHT AIR-DRIED SOIL (g)	12.48
(D) WEIGHT OVEN-DRIED SOIL (g)	11.46
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9183
CORRECTED SPLIT WEIGHT (B x E)	92.88

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	128.11
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	12.1%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.06	100.0%
5.4.143	#20	2.79	97.0%
5.4.58	#40	4.59	95.0%
5.4.145	#60	6.67	92.8%
5.4.162	#200	14.91	83.9%
5.4.181	#230	18.74	79.8%
5.4.189	#270	22.12	76.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-19 **Review Date** HS  
**Sample ID:** VN73\_10182016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.09	396.33	165.59	139.5	230.74	165%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				68	
B) Tare Weight, grams				15.50	
C) Wet Soil + Tare, grams - see comment				58.76	
D) Dry Soil + Tare, grams (initial)				33.36	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/13/2017	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)				33.34	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				17.86	
G) Weight of Moisture, grams [C - E]				25.40	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				142.2%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 10:30	
Date/Time End		4/14/2017 15:00	
I) Tare No.		3	
J) Weight of Tare, grams		51.35	
K) Weight of Oven-Dried Soil + Tare, grams		68.51	
L) Weight of Oven- Dried Soil, grams [K - J]		17.16	
M) Weight of Ignited Soil + Tare, grams		66.43	
N) Ash, grams [M - J]		15.08	
O) Ash Content, % [N *100 / L]		87.9%	
P) Organic Matter, % [100 - O]		12.1%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-20

Date Reviewed: 4/13/2017

SAMPLE ID: VN56\_10172016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	31	
Air Dry Start Date/Time	3/12/2017	14:09
Air Dry End Date/Time	3/15/2017	8:30
(A) TOTAL AIR-DRIED WEIGHT (g)	109.97	
(B) SPLIT AIR-DRIED WEIGHT (g)	83.62	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/23/2017
Sieve Analysis	3/26/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		25.84	
WEIGHT DRY SOIL & TARE (g)		25.41	
Tare #:	<u>31</u>	WEIGHT TARE (g)	15.53
(C) WEIGHT AIR-DRIED SOIL (g)		10.31	
(D) WEIGHT OVEN-DRIED SOIL (g)		9.88	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9583	
CORRECTED SPLIT WEIGHT (B x E)		80.13	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	105.38
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	14.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.20	3/8"	0.00	100.0%
5.4.52	#4	0.00	100.0%
5.4.58G	(G) #10	0.00	100.0%
5.4.144	#20	0.94	98.8%
5.4.108	#40	3.11	96.1%
5.4.146	#60	4.42	94.5%
5.4.187	#200	6.49	91.9%
5.4.188	#230	7.74	90.3%
5.4.130	#270	8.51	89.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-20 **Review Date** HS  
**Sample ID:** VN56\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	20.16	251.62	130.13	109.97	121.49	110.5%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							ND	ND
A) Tare No.							50	
B) Tare Weight, grams							15.59	
C) Wet Soil + Tare, grams - see comment							50.49	
D) Dry Soil + Tare, grams (initial)							30.38	
Date/Time of initial Weight of Dry Soil Taken (initial)							3/13/2017	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)							30.35	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							14.79	
G) Weight of Moisture, grams [C - E]							20.11	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							136.0%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/14/2017	10:29		
Date/Time End			4/14/2017	14:30		
I) Tare No.			20			
J) Weight of Tare, grams			51.28			
K) Weight of Oven-Dried Soil + Tare, grams			65.70			
L) Weight of Oven- Dried Soil, grams [K - J]			14.42			
M) Weight of Ignited Soil + Tare, grams			63.62			
N) Ash, grams [M - J]			12.34			
O) Ash Content, % [N *100 / L]			85.5%			
P) Organic Matter, % [100 - O]			14.5%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-21

Date Reviewed: 4/13/2017

SAMPLE ID: CJ05\_10082016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	122	
Air Dry Start Date/Time	3/10/2017	6:50
Air Dry End Date/Time	3/13/2017	8:00
(A) TOTAL AIR-DRIED WEIGHT (g)	135.30	
(B) SPLIT AIR-DRIED WEIGHT (g)	100.33	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		25.98	
WEIGHT DRY SOIL & TARE (g)		24.56	
Tare #:	<u>56</u>	WEIGHT TARE (g)	15.57
(C) WEIGHT AIR-DRIED SOIL (g)		10.41	
(D) WEIGHT OVEN-DRIED SOIL (g)		8.99	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.8636	
CORRECTED SPLIT WEIGHT (B x E)		86.64	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	116.85
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	8.6%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	1.53	98.2%
5.4.197	#40	6.96	92.0%
5.4.198	#60	10.75	87.6%
5.4.199	#200	16.99	80.4%
5.4.200	#230	19.26	77.8%
5.4.201	#270	21.29	75.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-21 **Review Date** HS  
**Sample ID:** CJ05\_10082016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	27.3	369.24	162.66	135.36	206.58	153%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							ND	ND
A) Tare No.							86.00	
B) Tare Weight, grams							15.53	
C) Wet Soil + Tare, grams - see comment							63.54	
D) Dry Soil + Tare, grams (initial)							36.76	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)							36.76	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							21.23	
G) Weight of Moisture, grams [C - E]							26.78	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							126.1%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/17/2017	6:10		
Date/Time End			4/17/2017	11:30		
I) Tare No.			6			
J) Weight of Tare, grams			50.65			
K) Weight of Oven-Dried Soil + Tare, grams			68.73			
L) Weight of Oven- Dried Soil, grams [K - J]			18.08			
M) Weight of Ignited Soil + Tare, grams			67.17			
N) Ash, grams [M - J]			16.52			
O) Ash Content, % [N *100 / L]			91.4%			
P) Organic Matter, % [100 - O]			8.6%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-22

Date Reviewed: 5/2/2017

SAMPLE ID: CJ08\_10072016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: ML Grayish Black andy SILT w/ Organic Material

Pan ID No.	LL-100
Air Dry Start Date/Time	4/14/2017 ND
Air Dry End Date/Time	4/16/2017 ND
(A) TOTAL AIR-DRIED WEIGHT (g)	185.41
(B) SPLIT AIR-DRIED WEIGHT (g)	103.27
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	4/23/2017
Sieve Analysis	4/26/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	39.36
WEIGHT DRY SOIL & TARE (g)	39.29
Tare #: <u>A-30</u> WEIGHT TARE (g)	19.96
(C) WEIGHT AIR-DRIED SOIL (g)	19.4
(D) WEIGHT OVEN-DRIED SOIL (g)	19.33
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9964
CORRECTED SPLIT WEIGHT (B x E)	102.90

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	184.74
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	8.8%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.32	99.8%
5.4.143	#20	0.56	99.3%
5.4.58	#40	2.23	97.7%
5.4.145	#60	4.13	95.8%
5.4.162	#200	10.68	89.5%
5.4.181	#230	12.75	87.5%
5.4.189	#270	14.35	85.9%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-22 **Review Date** HS  
**Sample ID:** CJ08\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
LL-100	34.56	456.78	319.97	285.41	136.81	48%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			4/22/2017	6:30				
A) Tare No.			29A					
B) Tare Weight, grams			50.40					
C) Wet Soil + Tare, grams - see comment			83.40					
D) Dry Soil + Tare, grams (initial)			83.37					
Date/Time of initial Weight of Dry Soil Taken (initial)			4/24/2017	0.26				
E) Dry Soil + Tare, grams (1 Hr. additional heating)			83.34					
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)			4/24/2017	0.48				
F) Weight of Dry Soil, grams [E - B]			32.97					
G) Weight of Moisture, grams [C - E]			0.03					
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)			0.1%					

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/24/2017	7:30		
Date/Time End			4/24/2017	12:00		
I) Tare No.			18			
J) Weight of Tare, grams			53.93			
K) Weight of Oven-Dried Soil + Tare, grams			86.69			
L) Weight of Oven- Dried Soil, grams [K - J]			32.76			
M) Weight of Ignited Soil + Tare, grams			83.81			
N) Ash, grams [M - J]			29.88			
O) Ash Content, % [N *100 / L]			91.2%			
P) Organic Matter, % [100 - O]			8.8%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-23

Date Reviewed: 4/13/2017

SAMPLE ID: CJ04\_10082016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	22	
Air Dry Start Date/Time	3/10/2017	7:30
Air Dry End Date/Time	3/13/2017	8:50
(A) TOTAL AIR-DRIED WEIGHT (g)	130.92	
(B) SPLIT AIR-DRIED WEIGHT (g)	104.04	
+ #10 WASH PAN ID	02	

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		25.7	
WEIGHT DRY SOIL & TARE (g)		24.63	
Tare #:	<u>39</u>	WEIGHT TARE (g)	15.54
(C) WEIGHT AIR-DRIED SOIL (g)		10.16	
(D) WEIGHT OVEN-DRIED SOIL (g)		9.09	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.8947	
CORRECTED SPLIT WEIGHT (B x E)		93.08	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	117.14
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	8.9%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.03	100.0%
5.4.196	#20	2.43	97.1%
5.4.197	#40	8.25	90.0%
5.4.198	#60	11.98	85.6%
5.4.199	#200	17.45	79.0%
5.4.200	#230	19.83	76.1%
5.4.201	#270	22.02	73.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-23 **Review Date** HS  
**Sample ID:** CJ04\_10082016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	27.43	353.31	158.35	130.92	194.96	149%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/12/2017	ND
A) Tare No.							57.00	
B) Tare Weight, grams							15.42	
C) Wet Soil + Tare, grams - see comment							58.50	
D) Dry Soil + Tare, grams (initial)							34.08	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )							34.06	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							ND	ND
F) Weight of Dry Soil, grams [E - B]							18.64	
G) Weight of Moisture, grams [C - E]							24.44	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							131.1%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/14/2017	10:31		
Date/Time End			4/14/2017	15:00		
I) Tare No.			2			
J) Weight of Tare, grams			51.81			
K) Weight of Oven-Dried Soil + Tare, grams			70.24			
L) Weight of Oven- Dried Soil, grams [K - J]			18.43			
M) Weight of Ignited Soil + Tare, grams			68.59			
N) Ash, grams [M - J]			16.78			
O) Ash Content, % [N *100 / L]			91.1%			
P) Organic Matter, % [100 - O]			8.9%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-24

Date Reviewed: 4/13/2017

SAMPLE ID: CJ01-10082016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL ND

Pan ID No.	25	
Air Dry Start Date/Time	3/10/2017	7:00
Air Dry End Date/Time	3/14/2017	10:50
(A) TOTAL AIR-DRIED WEIGHT (g)	219.93	
(B) SPLIT AIR-DRIED WEIGHT (g)	102.44	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	25.82	
WEIGHT DRY SOIL & TARE (g)	25.68	
Tare #: <u>02</u>	WEIGHT TARE (g)	15.49
(C) WEIGHT AIR-DRIED SOIL (g)	10.33	
(D) WEIGHT OVEN-DRIED SOIL (g)	10.19	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9864	
CORRECTED SPLIT WEIGHT (B x E)	101.05	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	217.28
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	5.0%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	4.48	97.9%
5.4.138	(G) #10	24.95	88.5%
5.4.143	#20	22.90	68.5%
5.4.58	#40	48.14	46.3%
5.4.145	#60	60.89	35.2%
5.4.162	#200	69.53	27.6%
5.4.181	#230	70.48	26.8%
5.4.189	#270	71.00	26.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-24 **Review Date** HS  
**Sample ID:** CJ01-10082016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	26.72	430.78	246.65	219.93	184.13	84%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/10/2017	6:09
A) Tare No.				08	
B) Tare Weight, grams				15.49	
C) Wet Soil + Tare, grams - see comment				62.09	
D) Dry Soil + Tare, grams (initial)				47.12	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/11/2017	6:09
E) Dry Soil + Tare, grams (1 Hr. additional heating )				47.08	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				ND	ND
F) Weight of Dry Soil, grams [E - B]				31.63	
G) Weight of Moisture, grams [C - E]				14.97	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				47.3%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 6:22	
Date/Time End		4/14/2017 10:30	
I) Tare No.		2	
J) Weight of Tare, grams		51.79	
K) Weight of Oven-Dried Soil + Tare, grams		82.74	
L) Weight of Oven- Dried Soil, grams [K - J]		30.95	
M) Weight of Ignited Soil + Tare, grams		81.18	
N) Ash, grams [M - J]		29.39	
O) Ash Content, % [N *100 / L]		95.0%	
P) Organic Matter, % [100 - O]		5.0%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-25

Date Reviewed: 4/13/2017

SAMPLE ID: CJ19\_10072016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Dark Greenish Gray Sandy CLAY

Pan ID No.	C-9	
Air Dry Start Date/Time	3/12/2017	11:00
Air Dry End Date/Time	3/16/2017	9:00
(A) TOTAL AIR-DRIED WEIGHT (g)	139.53	
(B) SPLIT AIR-DRIED WEIGHT (g)	52.20	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	26.16	
WEIGHT DRY SOIL & TARE (g)	25.72	
Tare #: <u>10</u>	WEIGHT TARE (g)	15.66
(C) WEIGHT AIR-DRIED SOIL (g)	10.5	
(D) WEIGHT OVEN-DRIED SOIL (g)	10.06	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9581	
CORRECTED SPLIT WEIGHT (B x E)	50.01	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	133.69
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	8.6%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.07	99.9%
5.4.143	#20	2.21	95.5%
5.4.58	#40	4.34	91.3%
5.4.145	#60	5.61	88.7%
5.4.162	#200	9.81	80.3%
5.4.181	#230	10.63	78.7%
5.4.189	#270	11.36	77.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-25 **Review Date** HS  
**Sample ID:** CJ19\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
C-9	109.53	410.36	249	139.47	161.36	116%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			3/16/2017	14:58				
A) Tare No.			20					
B) Tare Weight, grams			51.26					
C) Wet Soil + Tare, grams - see comment			72.90					
D) Dry Soil + Tare, grams (initial)			71.72					
Date/Time of initial Weight of Dry Soil Taken (initial)			3/17/2017	0.29				
E) Dry Soil + Tare, grams (1 Hr. additional heating )			71.68					
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )			4/14/2017	0.25				
F) Weight of Dry Soil, grams [E - B]			20.46					
G) Weight of Moisture, grams [C - E]			1.18					
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)			5.8%					

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/14/2017	6:08		
Date/Time End			4/14/2017	10:50		
I) Tare No.			20			
J) Weight of Tare, grams			51.27			
K) Weight of Oven-Dried Soil + Tare, grams			71.67			
L) Weight of Oven- Dried Soil, grams [K - J]			20.40			
M) Weight of Ignited Soil + Tare, grams			69.92			
N) Ash, grams [M - J]			18.65			
O) Ash Content, % [N *100 / L]			91.4%			
P) Organic Matter, % [100 - O]			8.6%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 1567-26  
 SAMPLE ID: VN51THRU58\_SIEVE\_02082017\_SED\_PRE  
 SAMPLE DESCRIPTION: ML Black Sandy SILT w/ Organic Material

Date Reviewed: 4/13/2017  
 Reviewed By: HS

Pan ID No.	NP
Air Dry Start Date/Time	NP NP
Air Dry End Date/Time	NP NP
(A) TOTAL AIR-DRIED WEIGHT (g)	36.99
(B) SPLIT AIR-DRIED WEIGHT (g)	26.01
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/18/2017
Hydrometer	3/16/2017

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.68
WEIGHT DRY SOIL & TARE (g)	25.48
Tare #: <u>08</u> WEIGHT TARE (g)	15.49
(C) WEIGHT AIR-DRIED SOIL (g)	10.19
(D) WEIGHT OVEN-DRIED SOIL (g)	9.99
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9804
CORRECTED SPLIT WEIGHT (B x E)	25.5

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	36.28
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	NP
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.67	98.2%
5.4.143	#20	0.48	96.3%
5.4.58	#40	1.31	93.1%
5.4.145	#60	2.09	90.1%
5.4.162	#200	4.01	82.7%
5.4.181	#230	4.83	79.6%
5.4.189	#270	5.36	77.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
9:30	9.2.03	GC-9	2.19.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11	30
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
9:33	2	22.7	25
9:36	5	22.7	21.5
9:46	15	23.0	17.5
10:01	30	23.0	16
10:31	60	23.0	14
1:41	250	22.2	11
9:33	1440	21.8	9

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 1567-26 **Review Date** HS  
**Sample ID:** VN51THRU58\_SIEVE\_02082017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
NP	NP	NP	NP	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			NP	NP		
Date/Time End			NP	NP		
I) Tare No.			NP			
J) Weight of Tare, grams			NP			
K) Weight of Oven-Dried Soil + Tare, grams			NP			
L) Weight of Oven- Dried Soil, grams [K - J]			0.00			
M) Weight of Ignited Soil + Tare, grams			NP			
N) Ash, grams [M - J]			0.00			
O) Ash Content, % [N *100 / L]			#DIV/0!			
P) Organic Matter, % [100 - O]			#DIV/0!			

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available and only Sieve Analysis and Hydrometer were performed as requested.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 2567-27

Date Reviewed: 5/2/2017

SAMPLE ID: VN51THRU58\_SIEVE\_02082017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: OL ND

Pan ID No.	NP
Air Dry Start Date/Time	NP NP
Air Dry End Date/Time	NP NP
(A) TOTAL AIR-DRIED WEIGHT (g)	NP
(B) SPLIT AIR-DRIED WEIGHT (g)	NP
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	NP
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	37.1%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	NP	NP
5.4.193	3/8"	NP	NP
5.4.194	#4	NP	NP
5.4.195	(G) #10	NP	NP
5.4.196	#20	NP	NP
5.4.197	#40	NP	NP
5.4.198	#60	NP	NP
5.4.199	#200	NP	NP
5.4.200	#230	NP	NP
5.4.201	#270	NP	NP
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 2567-27 **Review Date** HS  
**Sample ID:** VN51THRU58\_SIEVE\_02082017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
NP	NP	NP	NP	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/13/2017	9:35
A) Tare No.				87	
B) Tare Weight, grams				13.30	
C) Wet Soil + Tare, grams - see comment				82.06	
D) Dry Soil + Tare, grams (initial)				59.61	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/14/2017	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)				59.58	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/14/2017	ND
F) Weight of Dry Soil, grams [E - B]				46.31	
G) Weight of Moisture, grams [C - E]				22.45	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				48.5%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 11:20	
Date/Time End		4/14/2017 16:00	
I) Tare No.		5	
J) Weight of Tare, grams		52.70	
K) Weight of Oven-Dried Soil + Tare, grams		59.56	
L) Weight of Oven- Dried Soil, grams [K - J]		6.85	
M) Weight of Ignited Soil + Tare, grams		57.01	
N) Ash, grams [M - J]		4.31	
O) Ash Content, % [N *100 / L]		62.9%	
P) Organic Matter, % [100 - O]		37.1%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, only Organic Content at TBD (550° C) testing was performed as requested.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-28

Date Reviewed: 4/13/2017

SAMPLE ID: CJ07\_10072016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Light Gray Sandy CLAY

Pan ID No.	C-13	
Air Dry Start Date/Time	3/11/2017	8:00
Air Dry End Date/Time	3/17/2017	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	124.48	
(B) SPLIT AIR-DRIED WEIGHT (g)	101.14	
+ #10 WASH PAN ID	93	

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)		26.37
WEIGHT DRY SOIL & TARE (g)		25.83
Tare #:	<u>35</u>	WEIGHT TARE (g)
(C) WEIGHT AIR-DRIED SOIL (g)		10.81
(D) WEIGHT OVEN-DRIED SOIL (g)		10.27
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.95
CORRECTED SPLIT WEIGHT (B x E)		96.08

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	118.3
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	7.4%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.61	99.5%
5.4.195	(G) #10	0.95	99.2%
5.4.196	#20	0.37	98.8%
5.4.197	#40	1.20	98.0%
5.4.198	#60	3.51	95.6%
5.4.199	#200	10.76	88.1%
5.4.200	#230	11.40	87.4%
5.4.201	#270	11.71	87.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-28 **Review Date** HS  
**Sample ID:** CJ07\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	19.66	298.92	144.14	124.48	154.78	124%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/16/2017	2:14
A) Tare No.					46.00
B) Tare Weight, grams					15.54
C) Wet Soil + Tare, grams - see comment					58.33
D) Dry Soil + Tare, grams (initial)					34.64
Date/Time of initial Weight of Dry Soil Taken (initial)				3/17/2017	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )					34.59
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/14/2017	5:26
F) Weight of Dry Soil, grams [E - B]					19.05
G) Weight of Moisture, grams [C - E]					23.74
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)					124.6%

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 5:50	
Date/Time End		4/14/2017 10:10	
I) Tare No.		F	
J) Weight of Tare, grams		48.20	
K) Weight of Oven-Dried Soil + Tare, grams		66.51	
L) Weight of Oven- Dried Soil, grams [K - J]		18.31	
M) Weight of Ignited Soil + Tare, grams		65.15	
N) Ash, grams [M - J]		16.95	
O) Ash Content, % [N *100 / L]		92.6%	
P) Organic Matter, % [100 - O]		7.4%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 23-29  
 SAMPLE ID: CJ12\_10072016\_SED  
 SAMPLE DESCRIPTION: CL Light Gray Sandy CLAY

Date Reviewed: 4/13/2017  
 Reviewed By: HS

Pan ID No.	C-812	
Air Dry Start Date/Time	3/10/2017	8:00
Air Dry End Date/Time	3/14/2017	8:30
(A) TOTAL AIR-DRIED WEIGHT (g)	173.76	
(B) SPLIT AIR-DRIED WEIGHT (g)	100.20	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.82
WEIGHT DRY SOIL & TARE (g)	25.28
Tare #: <u>72</u> WEIGHT TARE (g)	15.53
(C) WEIGHT AIR-DRIED SOIL (g)	10.29
(D) WEIGHT OVEN-DRIED SOIL (g)	9.75
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9475
CORRECTED SPLIT WEIGHT (B x E)	94.94

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	165.16
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	10.1%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	4.57	97.2%
5.4.138	(G) #10	9.87	94.0%
5.4.143	#20	6.14	87.9%
5.4.58	#40	13.74	80.4%
5.4.145	#60	20.42	73.8%
5.4.162	#200	27.82	66.5%
5.4.181	#230	29.15	65.2%
5.4.189	#270	29.89	64.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-29 **Review Date** HS  
**Sample ID:** CJ12\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	20.84	351.16	194.6	173.76	156.56	90.1%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/16/2017	14:52
A) Tare No.				77	
B) Tare Weight, grams				15.62	
C) Wet Soil + Tare, grams - see comment				63.01	
D) Dry Soil + Tare, grams (initial)				34.90	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/17/2017	7:35
E) Dry Soil + Tare, grams (1 Hr. additional heating)				34.89	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/14/2017	5:26
F) Weight of Dry Soil, grams [E - B]				19.28	
G) Weight of Moisture, grams [C - E]				28.11	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				145.8%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 6:00	
Date/Time End		ND ND	
I) Tare No.		3	
J) Weight of Tare, grams		51.34	
K) Weight of Oven-Dried Soil + Tare, grams		70.76	
L) Weight of Oven- Dried Soil, grams [K - J]		19.41	
M) Weight of Ignited Soil + Tare, grams		68.79	
N) Ash, grams [M - J]		17.45	
O) Ash Content, % [N *100 / L]		89.9%	
P) Organic Matter, % [100 - O]		10.1%	

Remarks: **NP = Not Performed ; ND = Not Determined**

**Equipment used:**

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-30

Date Reviewed: 4/13/2017

SAMPLE ID: CJ20\_10072016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Greenish Gray Sandy CLAY

Pan ID No.	C-51	
Air Dry Start Date/Time	3/10/2017	10:30
Air Dry End Date/Time	3/14/2017	8:30
(A) TOTAL AIR-DRIED WEIGHT (g)	145.54	
(B) SPLIT AIR-DRIED WEIGHT (g)	100.67	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	25.97	
WEIGHT DRY SOIL & TARE (g)	24.34	
Tare #: <u>23</u>	WEIGHT TARE (g)	15.78
(C) WEIGHT AIR-DRIED SOIL (g)	10.19	
(D) WEIGHT OVEN-DRIED SOIL (g)	8.56	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.84	
CORRECTED SPLIT WEIGHT (B x E)	84.56	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	122.25
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	11.3%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.05	99.9%
5.4.58	#40	0.25	99.7%
5.4.145	#60	0.42	99.5%
5.4.162	#200	1.05	98.8%
5.4.181	#230	1.39	98.4%
5.4.189	#270	1.70	98.0%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-30 **Review Date** HS  
**Sample ID:** CJ20\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	19.79	352.93	165.33	145.54	187.6	129%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							ND	ND
A) Tare No.							67.00	
B) Tare Weight, grams							15.53	
C) Wet Soil + Tare, grams - see comment							50.40	
D) Dry Soil + Tare, grams (initial)							29.57	
Date/Time of initial Weight of Dry Soil Taken (initial)							4/17/2017	5:12
E) Dry Soil + Tare, grams (1 Hr. additional heating )							29.54	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							4/17/2017	6:22
F) Weight of Dry Soil, grams [E - B]							14.01	
G) Weight of Moisture, grams [C - E]							20.86	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							148.9%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/17/2017	6:50		
Date/Time End			4/17/2017	11:00		
I) Tare No.			10			
J) Weight of Tare, grams			52.82			
K) Weight of Oven-Dried Soil + Tare, grams			66.65			
L) Weight of Oven- Dried Soil, grams [K - J]			13.84			
M) Weight of Ignited Soil + Tare, grams			65.09			
N) Ash, grams [M - J]			12.27			
O) Ash Content, % [N *100 / L]			88.7%			
P) Organic Matter, % [100 - O]			11.3%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-31

Date Reviewed: 4/13/2017

SAMPLE ID: CJ10\_10072016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Brownish Green Sandy CLAY w/ Organic Material

Pan ID No.	ND
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	ND ND
(A) TOTAL AIR-DRIED WEIGHT (g)	111.99
(B) SPLIT AIR-DRIED WEIGHT (g)	51.82
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/12/2017
Sieve Analysis	3/15/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.72
WEIGHT DRY SOIL & TARE (g)	25.5
Tare #: <u>68</u> WEIGHT TARE (g)	15.53
(C) WEIGHT AIR-DRIED SOIL (g)	10.19
(D) WEIGHT OVEN-DRIED SOIL (g)	9.97
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9784
CORRECTED SPLIT WEIGHT (B x E)	50.7

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	109.58
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	9.3%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.21	99.8%
5.4.138	(G) #10	0.27	99.3%
5.4.143	#20	2.39	95.1%
5.4.58	#40	4.97	90.0%
5.4.145	#60	6.46	87.1%
5.4.162	#200	8.74	82.6%
5.4.181	#230	9.52	81.1%
5.4.189	#270	10.16	79.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-31 **Review Date** HS  
**Sample ID:** CJ10\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				14	
B) Tare Weight, grams				53.53	
C) Wet Soil + Tare, grams - see comment				75.40	
D) Dry Soil + Tare, grams (initial)				74.92	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/16/2017	13:10
E) Dry Soil + Tare, grams (1 Hr. additional heating)				74.83	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/14/2017	5:20
F) Weight of Dry Soil, grams [E - B]				21.39	
G) Weight of Moisture, grams [C - E]				0.48	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				2.2%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 5:00	
Date/Time End		4/14/2017 10:00	
I) Tare No.		14	
J) Weight of Tare, grams		53.53	
K) Weight of Oven-Dried Soil + Tare, grams		74.88	
L) Weight of Oven- Dried Soil, grams [K - J]		21.34	
M) Weight of Ignited Soil + Tare, grams		72.89	
N) Ash, grams [M - J]		19.35	
O) Ash Content, % [N *100 / L]		90.7%	
P) Organic Matter, % [100 - O]		9.3%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-32

Date Reviewed: 4/13/2017

SAMPLE ID: CJ09\_10072016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Brownish Gray Sandy CLAY

Pan ID No.	ND
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	ND ND
(A) TOTAL AIR-DRIED WEIGHT (g)	114.99
(B) SPLIT AIR-DRIED WEIGHT (g)	50.16
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/12/2017
Sieve Analysis	3/15/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.76
WEIGHT DRY SOIL & TARE (g)	25.52
Tare #: <u>65</u> WEIGHT TARE (g)	15.43
(C) WEIGHT AIR-DRIED SOIL (g)	10.33
(D) WEIGHT OVEN-DRIED SOIL (g)	10.09
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9768
CORRECTED SPLIT WEIGHT (B x E)	49

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	112.32
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	8.9%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	3.54	92.8%
5.4.58	#40	6.69	86.3%
5.4.145	#60	8.35	83.0%
5.4.162	#200	10.53	78.5%
5.4.181	#230	11.37	76.8%
5.4.189	#270	11.96	75.6%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-32 **Review Date** HS  
**Sample ID:** CJ09\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				MM1	
B) Tare Weight, grams				48.74	
C) Wet Soil + Tare, grams - see comment				78.79	
D) Dry Soil + Tare, grams (initial)				77.92	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/16/2017	13:15
E) Dry Soil + Tare, grams (1 Hr. additional heating)				77.83	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/14/2017	5:25
F) Weight of Dry Soil, grams [E - B]				29.18	
G) Weight of Moisture, grams [C - E]				0.87	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				3.0%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 6:00	
Date/Time End		4/14/2017 10:30	
I) Tare No.		MM1	
J) Weight of Tare, grams		48.75	
K) Weight of Oven-Dried Soil + Tare, grams		77.19	
L) Weight of Oven- Dried Soil, grams [K - J]		28.43	
M) Weight of Ignited Soil + Tare, grams		74.64	
N) Ash, grams [M - J]		25.89	
O) Ash Content, % [N *100 / L]		91.1%	
P) Organic Matter, % [100 - O]		8.9%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-33

Date Reviewed: 4/13/2017

SAMPLE ID: CJ21\_10072016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: ML Dark Gray Sandy SILT

Pan ID No.	121
Air Dry Start Date/Time	3/10/2017 7:30
Air Dry End Date/Time	3/13/2017 ND
(A) TOTAL AIR-DRIED WEIGHT (g)	95.43
(B) SPLIT AIR-DRIED WEIGHT (g)	80.68
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/22/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	26.23
WEIGHT DRY SOIL & TARE (g)	24.99
Tare #: <u>34</u> WEIGHT TARE (g)	15.5
(C) WEIGHT AIR-DRIED SOIL (g)	10.73
(D) WEIGHT OVEN-DRIED SOIL (g)	9.49
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.8844
CORRECTED SPLIT WEIGHT (B x E)	71.35

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	84.4
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	19.4%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.01	99.9%
5.4.58	#40	0.08	99.6%
5.4.145	#60	0.26	98.7%
5.4.162	#200	0.96	98.3%
5.4.181	#230	1.20	98.3%
5.4.189	#270	1.30	98.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-33 **Review Date** HS  
**Sample ID:** CJ21\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	21.53	290.35	116.96	95.43	173.39	182%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/16/2017	3:03
A) Tare No.				11.00	
B) Tare Weight, grams				51.78	
C) Wet Soil + Tare, grams - see comment				72.54	
D) Dry Soil + Tare, grams (initial)				72.03	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/14/2017	4:15
E) Dry Soil + Tare, grams (1 Hr. additional heating )				69.93	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/14/2017	5:15
F) Weight of Dry Soil, grams [E - B]				18.15	
G) Weight of Moisture, grams [C - E]				2.61	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				14.4%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 5:30	
Date/Time End		4/14/2017 10:30	
I) Tare No.		11	
J) Weight of Tare, grams		51.77	
K) Weight of Oven-Dried Soil + Tare, grams		72.03	
L) Weight of Oven- Dried Soil, grams [K - J]		20.26	
M) Weight of Ignited Soil + Tare, grams		68.10	
N) Ash, grams [M - J]		16.33	
O) Ash Content, % [N *100 / L]		80.6%	
P) Organic Matter, % [100 - O]		19.4%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-34

Date Reviewed: 4/13/2017

SAMPLE ID: CJ22\_10072016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: SC Greenish Brown Clayey SAND w/ Organic Material

Pan ID No.	ND	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	179.84	
(B) SPLIT AIR-DRIED WEIGHT (g)	50.94	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/12/2017
Sieve Analysis	3/15/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)		26.56
WEIGHT DRY SOIL & TARE (g)		26.35
Tare #:	<u>39</u>	WEIGHT TARE (g)
		15.55
(C) WEIGHT AIR-DRIED SOIL (g)		11.01
(D) WEIGHT OVEN-DRIED SOIL (g)		10.8
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9809
CORRECTED SPLIT WEIGHT (B x E)		49.97

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	176.53
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	8.6%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	6.56	96.3%
5.4.143	#20	5.84	85.0%
5.4.58	#40	14.22	68.9%
5.4.145	#60	21.19	55.5%
5.4.162	#200	28.84	40.7%
5.4.181	#230	29.65	39.2%
5.4.189	#270	30.21	38.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-34 **Review Date** HS  
**Sample ID:** CJ22\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				17	
B) Tare Weight, grams				53.13	
C) Wet Soil + Tare, grams - see comment				97.17	
D) Dry Soil + Tare, grams (initial)				73.36	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )				ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				ND	ND
F) Weight of Dry Soil, grams [E - B]				20.23	
G) Weight of Moisture, grams [C - E]				23.81	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				117.7%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/16/2017 5:00	
Date/Time End		4/16/2017 9:30	
I) Tare No.		17	
J) Weight of Tare, grams		53.11	
K) Weight of Oven-Dried Soil + Tare, grams		73.34	
L) Weight of Oven- Dried Soil, grams [K - J]		20.23	
M) Weight of Ignited Soil + Tare, grams		71.59	
N) Ash, grams [M - J]		18.48	
O) Ash Content, % [N *100 / L]		91.4%	
P) Organic Matter, % [100 - O]		8.6%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-35

Date Reviewed: 4/13/2017

SAMPLE ID: CJ13\_10072016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Brwonish Gray Sandy CLAY

Pan ID No.	3	
Air Dry Start Date/Time	3/10/2017	10:10
Air Dry End Date/Time	3/13/2017	8:30
(A) TOTAL AIR-DRIED WEIGHT (g)	102.81	
(B) SPLIT AIR-DRIED WEIGHT (g)	51.99	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		25.71	
WEIGHT DRY SOIL & TARE (g)		25.53	
Tare #:	<u>34</u>	WEIGHT TARE (g)	15.62
(C) WEIGHT AIR-DRIED SOIL (g)		10.09	
(D) WEIGHT OVEN-DRIED SOIL (g)		9.91	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9822	
CORRECTED SPLIT WEIGHT (B x E)		51.06	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	100.98
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	15.8%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	3.93	92.3%
5.4.58	#40	7.52	85.3%
5.4.145	#60	10.44	79.6%
5.4.162	#200	17.41	65.9%
5.4.181	#230	19.52	61.8%
5.4.189	#270	21.54	57.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-35 **Review Date** HS  
**Sample ID:** CJ13\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			3/12/2017	9:20				
A) Tare No.			18					
B) Tare Weight, grams			53.87					
C) Wet Soil + Tare, grams - see comment			69.93					
D) Dry Soil + Tare, grams (initial)			69.87					
Date/Time of initial Weight of Dry Soil Taken (initial)			4/14/2017	0.17				
E) Dry Soil + Tare, grams (1 Hr. additional heating)			69.87					
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)			4/14/2017	0.22				
F) Weight of Dry Soil, grams [E - B]			16.00					
G) Weight of Moisture, grams [C - E]			0.06					
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)			0.4%					

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/14/2017	5:36		
Date/Time End			4/14/2017	10:10		
I) Tare No.			18			
J) Weight of Tare, grams			53.88			
K) Weight of Oven-Dried Soil + Tare, grams			69.63			
L) Weight of Oven- Dried Soil, grams [K - J]			15.76			
M) Weight of Ignited Soil + Tare, grams			67.14			
N) Ash, grams [M - J]			13.26			
O) Ash Content, % [N *100 / L]			84.2%			
P) Organic Matter, % [100 - O]			15.8%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 23-36  
 SAMPLE ID: CJ141516\_10072016\_SED  
 SAMPLE DESCRIPTION: SM Black Silty SAND

Date Reviewed: 4/13/2017  
 Reviewed By: HS

Pan ID No.	C-6	
Air Dry Start Date/Time	3/13/2017	ND
Air Dry End Date/Time	3/17/2017	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	391.10	
(B) SPLIT AIR-DRIED WEIGHT (g)	102.17	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	27.85
WEIGHT DRY SOIL & TARE (g)	27.87
Tare #: <u>58</u> WEIGHT TARE (g)	15.39
(C) WEIGHT AIR-DRIED SOIL (g)	12.46
(D) WEIGHT OVEN-DRIED SOIL (g)	12.48
(E) HYGR. MOIST. CORR FACTOR (D/C)	1.0016
CORRECTED SPLIT WEIGHT (B x E)	102.33

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	391.72
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	1.8%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	1.37	99.7%
5.4.143	#20	11.10	88.8%
5.4.58	#40	30.68	69.8%
5.4.145	#60	48.32	52.6%
5.4.162	#200	90.50	11.5%
5.4.181	#230	92.74	9.3%
5.4.189	#270	93.93	8.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-36 **Review Date** HS  
**Sample ID:** CJ141516\_10072016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
C-6	0	591.1	391.1	391.1	200	51.1%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/12/2017	9:15
A) Tare No.				19	
B) Tare Weight, grams				52.58	
C) Wet Soil + Tare, grams - see comment				153.20	
D) Dry Soil + Tare, grams (initial)				100.62	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/14/2017	4:10
E) Dry Soil + Tare, grams (1 Hr. additional heating)				100.48	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/14/2017	5:09
F) Weight of Dry Soil, grams [E - B]				48.04	
G) Weight of Moisture, grams [C - E]				52.58	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				109.5%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 5:35	
Date/Time End		4/14/2017 10:10	
I) Tare No.		19	
J) Weight of Tare, grams		52.57	
K) Weight of Oven-Dried Soil + Tare, grams		152.99	
L) Weight of Oven- Dried Soil, grams [K - J]		100.42	
M) Weight of Ignited Soil + Tare, grams		151.20	
N) Ash, grams [M - J]		98.62	
O) Ash Content, % [N *100 / L]		98.2%	
P) Organic Matter, % [100 - O]		1.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 1567-37

Date Reviewed: 4/13/2017

SAMPLE ID: CJ01THRU22\_SIEVE\_02092017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy Clay

Pan ID No.	16	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	233.19	
(B) SPLIT AIR-DRIED WEIGHT (g)	52.17	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/18/2017
Hydrometer	3/16/2017

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	29.8	
WEIGHT DRY SOIL & TARE (g)	28.94	
Tare #: <u>45</u>	WEIGHT TARE (g)	15.72
(C) WEIGHT AIR-DRIED SOIL (g)	14.08	
(D) WEIGHT OVEN-DRIED SOIL (g)	13.22	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9389	
CORRECTED SPLIT WEIGHT (B x E)	48.98	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	219.11
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	5.8%
550 °C	7.8%
750 °C	9.4%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.26	99.9%
5.4.138	(G) #10	2.76	98.7%
5.4.143	#20	0.96	96.8%
5.4.58	#40	2.87	93.0%
5.4.145	#60	4.64	89.4%
5.4.162	#200	7.51	83.6%
5.4.181	#230	8.02	82.6%
5.4.189	#270	8.36	81.9%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
6:29	9.2.03	GC-15	2.19.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11	30
		READINGS:	10	4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
6:32	2	22.3	44
6:35	5	22.3	42
6:45	15	22.3	37
7:00	30	22.3	34
7:30	60	21.9	30
10:40	250	21.6	25
6:32	1440	21.1	20

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 1567-37 **Review Date** HS  
**Sample ID:** CJ01THRU22\_SIEVE\_02092017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
16	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating)							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/9/2017	4:00	3/9/2017	4:00	3/10/2017	5:00
Date/Time End	3/9/2017	8:00	3/9/2017	8:00	3/10/2014	9:00
I) Tare No.	106		105		D	
J) Weight of Tare, grams	47.94		47.54		45.78	
K) Weight of Oven-Dried Soil + Tare, grams	79.93		72.29		90.63	
L) Weight of Oven- Dried Soil, grams [K - J]	32.00		24.75		44.85	
M) Weight of Ignited Soil + Tare, grams	78.08		70.37		86.42	
N) Ash, grams [M - J]	30.14		22.82		40.64	
O) Ash Content, % [N *100 / L]	94.2%		92.2%		90.6%	
P) Organic Matter, % [100 - O]	5.8%		7.8%		9.4%	

Remarks: **NP = Not Performed ; ND = Not Determined**

**Equipment used:**

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 1567-38

Date Reviewed: 5/2/2017

SAMPLE ID: BU51\_10182016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: ML Dark Grayish Brown Sandy SILT w/ Clay and Organic Material

Pan ID No.	4	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	267.20	
(B) SPLIT AIR-DRIED WEIGHT (g)	49.75	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/18/2017
Hydrometer	3/16/2017

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		28.85	
WEIGHT DRY SOIL & TARE (g)		27.59	
Tare #:	<u>87A</u>	WEIGHT TARE (g)	13.31
(C) WEIGHT AIR-DRIED SOIL (g)		15.54	
(D) WEIGHT OVEN-DRIED SOIL (g)		14.28	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9189	
CORRECTED SPLIT WEIGHT (B x E)		45.72	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	245.55
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	13.5%
550 °C	14.4%
750 °C	14.7%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.22	99.9%
5.4.143	#20	0.92	97.9%
5.4.58	#40	1.95	95.6%
5.4.145	#60	2.70	94.0%
5.4.162	#200	7.64	83.2%
5.4.181	#230	10.52	76.9%
5.4.189	#270	13.05	71.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
6:25	9.2.03	GC-11	2.19.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11	30
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
6:28	2	22.3	31
6:31	5	22.3	24.5
6:41	15	22.3	20
6:56	30	22.3	18
7:26	60	21.8	16
10:36	250	21.6	15
6:28	1440	21.1	13

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 1567-38 **Review Date** HS  
**Sample ID:** BU51\_10182016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/9/2017	9:00	3/9/2017	9:00	3/11/2017	7:00
Date/Time End	3/9/2017	13:00	3/9/2017	13:00	3/11/2017	11:00
I) Tare No.	P		103		M	
J) Weight of Tare, grams	49.36		45.07		50.77	
K) Weight of Oven-Dried Soil + Tare, grams	94.41		77.57		96.69	
L) Weight of Oven- Dried Soil, grams [K - J]	45.05		32.50		45.92	
M) Weight of Ignited Soil + Tare, grams	88.34		72.90		89.96	
N) Ash, grams [M - J]	38.98		27.82		39.19	
O) Ash Content, % [N *100 / L]	86.5%		85.6%		85.3%	
P) Organic Matter, % [100 - O]	13.5%		14.4%		14.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

**Equipment used:**

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 1567-39

Date Reviewed: 4/13/2017

SAMPLE ID: VN51THRU58\_SIEVE\_02082017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Silt w/ Organic Material

Pan ID No.	C-15
Air Dry Start Date/Time	3/12/2017 7:00
Air Dry End Date/Time	3/14/2017 9:36
(A) TOTAL AIR-DRIED WEIGHT (g)	132.60
(B) SPLIT AIR-DRIED WEIGHT (g)	88.41
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/17/2017
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.94
WEIGHT DRY SOIL & TARE (g)	25.71
Tare #: <u>13</u> WEIGHT TARE (g)	15.46
(C) WEIGHT AIR-DRIED SOIL (g)	10.48
(D) WEIGHT OVEN-DRIED SOIL (g)	10.25
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9781
CORRECTED SPLIT WEIGHT (B x E)	86.47

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	129.7
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	13.0%
550 °C	14.9%
750 °C	15.4%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.20	3/8"	0.00	100.0%
5.4.52	#4	0.00	100.0%
5.4.58G	(G) #10	0.00	100.0%
5.4.144	#20	0.34	99.6%
5.4.108	#40	0.61	99.3%
5.4.146	#60	1.89	97.8%
5.4.187	#200	2.68	96.9%
5.4.188	#230	3.49	96.0%
5.4.130	#270	4.07	95.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 1567-39 **Review Date** HS  
**Sample ID:** VN51THRU58\_SIEVE\_02082017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	34.75	337.95	135.53	100.78	202.42	201%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/16/2017	14:46
A) Tare No.							183	
B) Tare Weight, grams							15.34	
C) Wet Soil + Tare, grams - see comment							51.40	
D) Dry Soil + Tare, grams (initial)							28.14	
Date/Time of initial Weight of Dry Soil Taken (initial)							3/17/2017	8:00
E) Dry Soil + Tare, grams (1 Hr. additional heating )							28.13	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							3/17/2017	9:00
F) Weight of Dry Soil, grams [E - B]							12.80	
G) Weight of Moisture, grams [C - E]							23.26	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							181.7%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/20/2017	6:50	3/20/2017	6:50	3/21/2017	5:00
Date/Time End	3/20/2017	11:50	3/20/2017	11:50	3/21/2017	10:00
I) Tare No.	3		D		51	
J) Weight of Tare, grams	51.33		45.79		50.52	
K) Weight of Oven-Dried Soil + Tare, grams	79.47		70.21		75.14	
L) Weight of Oven- Dried Soil, grams [K - J]	28.14		24.43		24.62	
M) Weight of Ignited Soil + Tare, grams	75.82		66.58		71.34	
N) Ash, grams [M - J]	24.49		20.79		20.83	
O) Ash Content, % [N *100 / L]	87.0%		85.1%		84.6%	
P) Organic Matter, % [100 - O]	13.0%		14.9%		15.4%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 2567-40

Date Reviewed: 5/2/2017

SAMPLE ID: CJ01THRU22\_SIEVE\_02092017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: SM Gray Greenish Brown Silty SAND w/ Organic Material

Pan ID No.	31	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	274.95	
(B) SPLIT AIR-DRIED WEIGHT (g)	103.29	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/20/2017
Hydrometer	3/16/2017

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	26.24	
WEIGHT DRY SOIL & TARE (g)	26.17	
Tare #: <u>22</u>	WEIGHT TARE (g)	15.48
(C) WEIGHT AIR-DRIED SOIL (g)	10.76	
(D) WEIGHT OVEN-DRIED SOIL (g)	10.69	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9935	
CORRECTED SPLIT WEIGHT (B x E)	102.62	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	273.16
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	8.0%
550 °C	9.3%
750 °C	10.5%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.15	99.9%
5.4.143	#20	3.08	96.9%
5.4.58	#40	66.07	35.6%
5.4.145	#60	83.37	18.7%
5.4.162	#200	90.32	12.0%
5.4.181	#230	90.73	11.6%
5.4.189	#270	90.95	11.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
9:30	9.2.03	ND	2.19.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11	30
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
9:33	2	22.2	17
9:36	5	22.2	15
9:46	15	22.2	14.5
10:01	30	22.3	14
10:31	60	22.3	13
1:41	250	22.1	11
9:33	1440	21.9	9

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 2567-40 **Review Date** HS  
**Sample ID:** CJ01THRU22\_SIEVE\_02092017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating)							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	ND	ND	ND	ND	ND	ND
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	2		1		6	
J) Weight of Tare, grams	51.78		50.83		50.63	
K) Weight of Oven-Dried Soil + Tare, grams	89.19		79.17		82.14	
L) Weight of Oven- Dried Soil, grams [K - J]	37.41		28.34		31.51	
M) Weight of Ignited Soil + Tare, grams	86.20		76.53		78.82	
N) Ash, grams [M - J]	34.42		25.70		28.19	
O) Ash Content, % [N *100 / L]	92.0%		90.7%		89.5%	
P) Organic Matter, % [100 - O]	8.0%		9.3%		10.5%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 2567-41

Date Reviewed: 4/13/2017

SAMPLE ID: BU50THRU52\_SIEVE\_02102017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: OL Dark Brown Organic SILT

Pan ID No.	C-7	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	118.29	
(B) SPLIT AIR-DRIED WEIGHT (g)	100.91	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	25.46	
WEIGHT DRY SOIL & TARE (g)	24.82	
Tare #: <u>29</u>	WEIGHT TARE (g)	15.28
(C) WEIGHT AIR-DRIED SOIL (g)	10.18	
(D) WEIGHT OVEN-DRIED SOIL (g)	9.54	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9371	
CORRECTED SPLIT WEIGHT (B x E)	94.56	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	110.85
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	39.8%
550 °C	46.6%
750 °C	47.8%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	2.60	97.3%
5.4.58	#40	7.40	92.2%
5.4.145	#60	11.10	88.3%
5.4.162	#200	17.34	81.7%
5.4.181	#230	18.25	80.7%
5.4.189	#270	18.61	80.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 2567-41 **Review Date** HS  
**Sample ID:** BU50THRU52\_SIEVE\_02102017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	ND	ND	ND	ND	ND	ND
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	P		5		105	
J) Weight of Tare, grams	49.36		52.72		47.56	
K) Weight of Oven-Dried Soil + Tare, grams	55.79		58.00		54.14	
L) Weight of Oven- Dried Soil, grams [K - J]	6.43		5.28		6.58	
M) Weight of Ignited Soil + Tare, grams	53.23		55.54		51.00	
N) Ash, grams [M - J]	3.87		2.82		3.43	
O) Ash Content, % [N *100 / L]	60.2%		53.4%		52.2%	
P) Organic Matter, % [100 - O]	39.8%		46.6%		47.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 1567-42

Date Reviewed: 4/13/2017

SAMPLE ID: BU50THRU52\_SIEVE\_02102017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: ML Dark Gray Sandy SILT w/ Organic Material

Pan ID No.	56	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	274.68	
(B) SPLIT AIR-DRIED WEIGHT (g)	52.39	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	3/16/2017

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	26.68	
WEIGHT DRY SOIL & TARE (g)	26.45	
Tare #: <u>89</u>	WEIGHT TARE (g)	15.65
(C) WEIGHT AIR-DRIED SOIL (g)	11.03	
(D) WEIGHT OVEN-DRIED SOIL (g)	10.8	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9791	
CORRECTED SPLIT WEIGHT (B x E)	51.30	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	268.95
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	8.3%
550 °C	8.8%
750 °C	9.3%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.48	99.8%
5.4.143	#20	0.30	99.2%
5.4.58	#40	0.68	98.5%
5.4.145	#60	1.20	97.5%
5.4.162	#200	16.08	68.5%
5.4.181	#230	20.36	60.2%
5.4.189	#270	22.99	55.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
7:59	9.2.03	GC-15	2.19.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11	30
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
8:02	2	22.2	27.5
8:05	5	22.2	21
8:15	15	22.2	16
8:30	30	22.4	15
9:00	60	22.4	14
12:10	250	22.4	13
8:02	1440	20.9	12

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 1567-42 **Review Date** HS  
**Sample ID:** BU50THRU52\_SIEVE\_02102017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating)							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	ND	ND	ND	ND	ND	ND
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	F		D		F	
J) Weight of Tare, grams	48.20		45.79		48.20	
K) Weight of Oven-Dried Soil + Tare, grams	69.33		61.48		72.32	
L) Weight of Oven- Dried Soil, grams [K - J]	21.13		15.69		24.12	
M) Weight of Ignited Soil + Tare, grams	67.58		60.09		70.07	
N) Ash, grams [M - J]	19.38		14.31		21.87	
O) Ash Content, % [N *100 / L]	91.7%		91.2%		90.7%	
P) Organic Matter, % [100 - O]	8.3%		8.8%		9.3%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 13-43  
 SAMPLE ID: MM62\_10202016\_SED  
 SAMPLE DESCRIPTION: ML Black Sandy SILT w/ Organic Material

Date Reviewed: 5/2/2017  
 Reviewed By: HS

Pan ID No.	LL-6	
Air Dry Start Date/Time	3/30/2017	9:41
Air Dry End Date/Time	4/2/2017	8:30
(A) TOTAL AIR-DRIED WEIGHT (g)	145.99	
(B) SPLIT AIR-DRIED WEIGHT (g)	38.82	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/23/2017
Sieve Analysis	4/26/2017
Hydrometer	4/22/2017

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.6
WEIGHT DRY SOIL & TARE (g)	25.34
Tare #: <u>15C</u> WEIGHT TARE (g)	14.4
(C) WEIGHT AIR-DRIED SOIL (g)	11.2
(D) WEIGHT OVEN-DRIED SOIL (g)	10.94
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9768
CORRECTED SPLIT WEIGHT (B x E)	37.92

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	142.60
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	9.8%
550 °C	11.0%
750 °C	11.6%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.30	99.2%
5.4.58	#40	0.57	98.5%
5.4.145	#60	0.75	98.0%
5.4.162	#200	2.20	94.2%
5.4.181	#230	2.83	92.5%
5.4.189	#270	3.66	90.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
6:19	9.2.03	GC-7	2.19.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
6:22	2	23.2	33
6:25	5	23.2	27
6:35	15	23.2	22
6:50	30	23.2	18
7:20	60	23.2	15
10:30	250	23.0	13
6:02	1440	23.1	11

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 13-43 **Review Date** HS  
**Sample ID:** MM62\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
LL-6	34.75	513.89	180.74	145.99	333.15	228.2%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start	ND	ND	ND	ND	ND	ND		
A) Tare No.	15		25		9			
B) Tare Weight, grams	52.85		52.24		53.61			
C) Wet Soil + Tare, grams - see comment	81.80		80.85		82.06			
D) Dry Soil + Tare, grams (initial)	80.82		79.86		80.82			
Date/Time of initial Weight of Dry Soil Taken (initial)	4/24/2017	6:25	4/24/2017	0:27	4/25/2017	6:01		
E) Dry Soil + Tare, grams (1 Hr. additional heating)	80.79		79.84		80.81			
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)	4/24/2017	7:25	4/24/2017	0:31	4/25/2017	7:15		
F) Weight of Dry Soil, grams [E - B]	27.97		27.62		27.40			
G) Weight of Moisture, grams [C - E]	0.98		0.99		1.25			
H) Moisture Content, % [G * 100 / F]	3.5%		3.6%		4.6%			
(based on oven-dried weight)								

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	4/24/2017	8:30	4/24/2017	8:30	4/25/2017	6:01
Date/Time End	4/24/2017	13:00	4/24/2017	13:00	4/25/2017	11:00
I) Tare No.	15		25		9	
J) Weight of Tare, grams	52.85		52.24		53.41	
K) Weight of Oven-Dried Soil + Tare, grams	80.81		79.85		79.65	
L) Weight of Oven- Dried Soil, grams [K - J]	27.96		27.61		26.24	
M) Weight of Ignited Soil + Tare, grams	78.07		76.81		76.62	
N) Ash, grams [M - J]	25.22		24.57		23.21	
O) Ash Content, % [N *100 / L]	90.2%		89.0%		88.4%	
P) Organic Matter, % [100 - O]	9.8%		11.0%		11.6%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 1567-44

Date Reviewed: 4/13/2017

SAMPLE ID: CJ01THRU22\_SIEVE\_02112017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Light Brown Silty CLAY w/ Organic Material

Pan ID No.	03B	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	209.02	
(B) SPLIT AIR-DRIED WEIGHT (g)	51.37	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/18/2017
Hydrometer	3/16/2017

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)		25.75
WEIGHT DRY SOIL & TARE (g)		24.78
Tare #:	<u>11</u>	WEIGHT TARE (g)
		15.59
(C) WEIGHT AIR-DRIED SOIL (g)		10.16
(D) WEIGHT OVEN-DRIED SOIL (g)		9.19
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9045
CORRECTED SPLIT WEIGHT (B x E)		46.46

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	189.06
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	7.7%
550 °C	9.1%
750 °C	9.9%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.03	99.9%
5.4.58	#40	0.09	99.8%
5.4.145	#60	0.16	99.7%
5.4.162	#200	1.46	96.9%
5.4.181	#230	1.86	96.0%
5.4.189	#270	2.14	95.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
8:39	9.2.03	GC-6	2.19.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11	30
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
8:42	2	22.7	44
8:45	5	22.7	43
8:55	15	22.7	41
9:10	30	22.7	37
9:40	60	22.7	33
12:50	250	22.5	26
8:42	1440	21.8	21

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 1567-44 **Review Date** HS  
**Sample ID:** CJ01THRU22\_SIEVE\_02112017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating)							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/9/2017	4:00	3/9/2017	4:00	3/10/2017	5:00
Date/Time End	3/9/2017	8:00	3/9/2017	8:00	3/9/2017	9:00
I) Tare No.	B		D		ND	
J) Weight of Tare, grams	54.65		45.78		50.83	
K) Weight of Oven-Dried Soil + Tare, grams	72.82		70.10		69.20	
L) Weight of Oven- Dried Soil, grams [K - J]	18.16		24.32		18.37	
M) Weight of Ignited Soil + Tare, grams	71.41		67.88		67.39	
N) Ash, grams [M - J]	16.76		22.10		16.56	
O) Ash Content, % [N *100 / L]	92.3%		90.9%		90.1%	
P) Organic Matter, % [100 - O]	7.7%		9.1%		9.9%	

Remarks: **NP = Not Performed ; ND = Not Determined**

**Equipment used:**

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 1567-45

Date Reviewed: 4/13/2017

SAMPLE ID: MM57THRU62\_SIEVE\_02112017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: ML Black Sandy SILT w/ Organic Material

Pan ID No.	3C	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	116.97	
(B) SPLIT AIR-DRIED WEIGHT (g)	50.62	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/18/2017
Hydrometer	3/16/2017

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)		26.02
WEIGHT DRY SOIL & TARE (g)		25.81
Tare #:	<u>55</u>	WEIGHT TARE (g)
		15.52
(C) WEIGHT AIR-DRIED SOIL (g)		10.5
(D) WEIGHT OVEN-DRIED SOIL (g)		10.29
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.98
CORRECTED SPLIT WEIGHT (B x E)		49.61

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	114.63
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	6.7%
550 °C	7.4%
750 °C	8.1%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.08	99.9%
5.4.143	#20	0.23	99.5%
5.4.58	#40	0.34	99.2%
5.4.145	#60	1.18	97.6%
5.4.162	#200	9.34	81.1%
5.4.181	#230	10.58	78.6%
5.4.189	#270	11.32	77.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
8:17	9.2.03	GC-2	2.19.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11	30
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
8:20	2	22.5	33.5
8:23	5	22.6	28
8:33	15	22.6	22.5
8:48	30	22.6	20
9:18	60	22.6	17
12:28	250	22.4	14
8:20	1440	21.8	12

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 1567-45 **Review Date** HS  
**Sample ID:** MM57THRU62\_SIEVE\_02112017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating)							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/9/2017	9:00	3/9/2017	9:00	3/11/2017	7:00
Date/Time End	3/9/2017	13:00	3/9/2017	13:00	3/11/2017	11:00
I) Tare No.	M1		4		6	
J) Weight of Tare, grams	48.76		50.33		50.63	
K) Weight of Oven-Dried Soil + Tare, grams	67.14		74.92		72.15	
L) Weight of Oven- Dried Soil, grams [K - J]	18.38		24.59		21.52	
M) Weight of Ignited Soil + Tare, grams	65.90		73.10		70.40	
N) Ash, grams [M - J]	17.14		22.76		19.77	
O) Ash Content, % [N *100 / L]	93.3%		92.6%		91.9%	
P) Organic Matter, % [100 - O]	6.7%		7.4%		8.1%	

Remarks: **NP = Not Performed ; ND = Not Determined**

**Equipment used:**

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 3-46

Date Reviewed: 4/18/2017

SAMPLE ID: MM57THRU62\_SIEVE\_02112017\_SED\_PRE\_NEW

Reviewed By: HS

SAMPLE DESCRIPTION: NP Dark Gray Organic SILT

Pan ID No.	NP
Air Dry Start Date/Time	NP NP
Air Dry End Date/Time	NP NP
(A) TOTAL AIR-DRIED WEIGHT (g)	NP
(B) SPLIT AIR-DRIED WEIGHT (g)	NP
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	NP
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	16.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
	3/4"	NP	NP
	3/8"	NP	NP
	#4	NP	NP
	(G) #10	NP	NP
	#20	NP	NP
	#40	NP	NP
	#60	NP	NP
	#200	NP	NP
	#230	NP	NP
	#270	NP	NP
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/18/2017  
**Lab ID No.** 3-46 **Review Date** HS  
**Sample ID:** MM57THRU62\_SIEVE\_02112017\_SED\_PRE\_NEW

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
NP	NP	NP	NP	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/13/2017	9:36
A) Tare No.				10.00	
B) Tare Weight, grams				50.82	
C) Wet Soil + Tare, grams - see comment				66.21	
D) Dry Soil + Tare, grams (initial)				57.27	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/14/2017	10:00
E) Dry Soil + Tare, grams (1 Hr. additional heating )				57.26	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/14/2017	11:00
F) Weight of Dry Soil, grams [E - B]				6.44	
G) Weight of Moisture, grams [C - E]				8.95	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				139.0%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 10:20	
Date/Time End		4/14/2017 15:30	
I) Tare No.		10	
J) Weight of Tare, grams		50.82	
K) Weight of Oven-Dried Soil + Tare, grams		57.21	
L) Weight of Oven- Dried Soil, grams [K - J]		6.39	
M) Weight of Ignited Soil + Tare, grams		56.14	
N) Ash, grams [M - J]		5.32	
O) Ash Content, % [N *100 / L]		83.3%	
P) Organic Matter, % [100 - O]		16.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 1567-47

Date Reviewed: 4/13/2017

SAMPLE ID: BU50THRU52\_SIEVE\_02112017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: ML Greenish Brown Sandy SILT w/ Organic Material and trace of Clay

Pan ID No.	6C	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	400.45	
(B) SPLIT AIR-DRIED WEIGHT (g)	53.09	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/18/2017
Hydrometer	3/16/2017

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	26.28	
WEIGHT DRY SOIL & TARE (g)	26.22	
Tare #: <u>91</u>	WEIGHT TARE (g)	15.51
(C) WEIGHT AIR-DRIED SOIL (g)	10.77	
(D) WEIGHT OVEN-DRIED SOIL (g)	10.71	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9944	
CORRECTED SPLIT WEIGHT (B x E)	52.79	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	398.21
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	3.2%
550 °C	3.5%
750 °C	4.0%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.06	99.9%
5.4.58	#40	0.09	99.8%
5.4.145	#60	0.19	99.6%
5.4.162	#200	19.89	62.3%
5.4.181	#230	26.47	49.9%
5.4.189	#270	30.06	43.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
8:50	9.2.03	ND	2.19.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11	30
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
8:53	2	22.7	20.5
8:56	5	22.7	16
9:06	15	22.7	12
9:22	30	22.7	11
9:52	60	22.7	10
1:02	250	22.8	9
8:53	1440	21.7	8

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 1567-47 **Review Date** HS  
**Sample ID:** BU50THRU52\_SIEVE\_02112017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/15/2017	6:00	3/15/2017	6:00	3/17/2017	5:30
Date/Time End	3/15/2017	10:00	3/15/2017	10:00	3/17/2017	9:40
I) Tare No.	P		B		2	
J) Weight of Tare, grams	49.37		54.65		51.78	
K) Weight of Oven-Dried Soil + Tare, grams	82.97		80.89		86.54	
L) Weight of Oven- Dried Soil, grams [K - J]	33.61		26.24		34.77	
M) Weight of Ignited Soil + Tare, grams	81.90		79.98		85.17	
N) Ash, grams [M - J]	32.53		25.33		33.39	
O) Ash Content, % [N *100 / L]	96.8%		96.5%		96.0%	
P) Organic Matter, % [100 - O]	3.2%		3.5%		4.0%	

Remarks: **NP = Not Performed ; ND = Not Determined**

**Equipment used:**

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 2567-48

Date Reviewed: 4/13/2017

SAMPLE ID: MM57THRU62\_SIEVE\_02122017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: ML Gray Greenish Brown Sandy SILT w/ Trace of Organics

Pan ID No.	C-11	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	293.60	
(B) SPLIT AIR-DRIED WEIGHT (g)	103.57	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)		26.68
WEIGHT DRY SOIL & TARE (g)		26.63
Tare #:	<u>38</u>	WEIGHT TARE (g)
(C) WEIGHT AIR-DRIED SOIL (g)		11.21
(D) WEIGHT OVEN-DRIED SOIL (g)		11.16
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9955
CORRECTED SPLIT WEIGHT (B x E)		103.10

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	292.28
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	1.8%
550 °C	2.4%
750 °C	2.7%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	3.94	96.2%
5.4.58	#40	8.53	91.7%
5.4.145	#60	11.65	88.7%
5.4.162	#200	17.69	82.8%
5.4.181	#230	19.76	80.8%
5.4.189	#270	23.15	77.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 2567-48 **Review Date** HS  
**Sample ID:** MM57THRU62\_SIEVE\_02122017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	ND	ND	ND	ND	ND	ND
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	F		B		4	
J) Weight of Tare, grams	48.20		54.64		50.33	
K) Weight of Oven-Dried Soil + Tare, grams	67.15		72.43		67.28	
L) Weight of Oven- Dried Soil, grams [K - J]	18.96		17.78		16.94	
M) Weight of Ignited Soil + Tare, grams	66.81		72.01		66.82	
N) Ash, grams [M - J]	18.61		17.36		16.49	
O) Ash Content, % [N *100 / L]	98.2%		97.6%		97.3%	
P) Organic Matter, % [100 - O]	1.8%		2.4%		2.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-49

Date Reviewed: 4/13/2017

SAMPLE ID: MM66\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY w/ Organic Material

Pan ID No.	C-9	
Air Dry Start Date/Time	3/9/2017	7:00
Air Dry End Date/Time	3/13/2017	8:50
(A) TOTAL AIR-DRIED WEIGHT (g)	50.55	
(B) SPLIT AIR-DRIED WEIGHT (g)	NP	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	3/20/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	24.9%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.29	99.4%
5.4.58	#40	0.77	98.5%
5.4.145	#60	1.24	97.5%
5.4.162	#200	3.87	92.3%
5.4.181	#230	5.50	89.1%
5.4.189	#270	6.80	86.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-49 **Review Date** HS  
**Sample ID:** MM66\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
JAR	22.94	109.3	73.49	50.55	35.81	71%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/16/2017	2:56
A) Tare No.				85.00	
B) Tare Weight, grams				15.57	
C) Wet Soil + Tare, grams - see comment				49.74	
D) Dry Soil + Tare, grams (initial)				36.03	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/17/2017	8:00
E) Dry Soil + Tare, grams (1 Hr. additional heating)				35.98	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				20.41	
G) Weight of Moisture, grams [C - E]				13.76	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				67.4%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 11:00	
Date/Time End		4/14/2017 17:00	
I) Tare No.		11	
J) Weight of Tare, grams		53.12	
K) Weight of Oven-Dried Soil + Tare, grams		73.11	
L) Weight of Oven- Dried Soil, grams [K - J]		19.99	
M) Weight of Ignited Soil + Tare, grams		68.13	
N) Ash, grams [M - J]		15.01	
O) Ash Content, % [N *100 / L]		75.1%	
P) Organic Matter, % [100 - O]		24.9%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-50

Date Reviewed: 4/13/2017

SAMPLE ID: MM51\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	NP
Air Dry Start Date/Time	NP NP
Air Dry End Date/Time	NP NP
(A) TOTAL AIR-DRIED WEIGHT (g)	42.97
(B) SPLIT AIR-DRIED WEIGHT (g)	NP
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	#DIV/0!
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	1.05	97.6%
5.4.58	#40	2.04	95.3%
5.4.145	#60	2.73	93.6%
5.4.162	#200	5.64	86.9%
5.4.181	#230	6.77	84.2%
5.4.189	#270	7.63	82.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-50 **Review Date** HS  
**Sample ID:** MM51\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
NP	NP	NP	NP	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216		
Date/Time Start							NP	NP	
A) Tare No.								NP	
B) Tare Weight, grams								NP	
C) Wet Soil + Tare, grams - see comment								NP	
D) Dry Soil + Tare, grams (initial)								NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP	
E) Dry Soil + Tare, grams (1 Hr. additional heating )								NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							NP	NP	
F) Weight of Dry Soil, grams [E - B]								0.00	
G) Weight of Moisture, grams [C - E]								0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)								#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)		
Date/Time Start			NP	NP			
Date/Time End			NP	NP			
I) Tare No.						NP	
J) Weight of Tare, grams						NP	
K) Weight of Oven-Dried Soil + Tare, grams						NP	
L) Weight of Oven- Dried Soil, grams [K - J]						0.00	
M) Weight of Ignited Soil + Tare, grams						NP	
N) Ash, grams [M - J]						0.00	
O) Ash Content, % [N *100 / L]						#DIV/0!	
P) Organic Matter, % [100 - O]						#DIV/0!	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, Organic Content at was not performed and not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-51

Date Reviewed: 4/14/2017

SAMPLE ID: MM70\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Reddish Brown Sandy CLAY

Pan ID No.	ND	ND
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	28.10	
(B) SPLIT AIR-DRIED WEIGHT (g)	25.29	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	NP	
WEIGHT DRY SOIL & TARE (g)	NP	
Tare #:	<u>NP</u>	WEIGHT TARE (g)
		NP
(C) WEIGHT AIR-DRIED SOIL (g)	0	
(D) WEIGHT OVEN-DRIED SOIL (g)	0	
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!	
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	27.0%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	3.21	87.3%
5.4.58	#40	5.55	78.1%
5.4.145	#60	6.92	72.6%
5.4.162	#200	9.63	61.9%
5.4.181	#230	10.02	60.4%
5.4.189	#270	10.27	59.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-51 **Review Date** HS  
**Sample ID:** MM70\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				15.00	
B) Tare Weight, grams				52.83	
C) Wet Soil + Tare, grams - see comment				68.36	
D) Dry Soil + Tare, grams (initial)				67.46	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/17/2017	5:00
E) Dry Soil + Tare, grams (1 Hr. additional heating )				67.43	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/17/2017	6:32
F) Weight of Dry Soil, grams [E - B]				14.60	
G) Weight of Moisture, grams [C - E]				0.93	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				6.4%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/17/2017 6:40	
Date/Time End		4/17/2017 11:15	
I) Tare No.		15	
J) Weight of Tare, grams		52.85	
K) Weight of Oven-Dried Soil + Tare, grams		67.43	
L) Weight of Oven- Dried Soil, grams [K - J]		14.58	
M) Weight of Ignited Soil + Tare, grams		63.50	
N) Ash, grams [M - J]		10.65	
O) Ash Content, % [N *100 / L]		73.0%	
P) Organic Matter, % [100 - O]		27.0%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 1567-52

Date Reviewed: 4/13/2017

SAMPLE ID: MM57THRU62\_SIEVE\_02152017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: ML Black Sandy Clayey SILT

Pan ID No.	38	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	281.21	
(B) SPLIT AIR-DRIED WEIGHT (g)	53.62	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/18/2017
Hydrometer	3/16/2017

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	26.29	
WEIGHT DRY SOIL & TARE (g)	25.27	
Tare #: <u>16</u>	WEIGHT TARE (g)	15.49
(C) WEIGHT AIR-DRIED SOIL (g)	10.8	
(D) WEIGHT OVEN-DRIED SOIL (g)	9.78	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9056	
CORRECTED SPLIT WEIGHT (B x E)	48.56	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	254.66
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	10.0%
550 °C	11.1%
750 °C	11.8%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	1.38	97.2%
5.4.58	#40	4.37	91.0%
5.4.145	#60	7.64	84.3%
5.4.162	#200	18.91	61.1%
5.4.181	#230	20.15	58.5%
5.4.189	#270	20.80	57.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
8:10	9.2.03	ND	2.19.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11	30
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
8:13	2	22.2	30
8:16	5	22.2	27.5
8:26	15	23.4	24
8:41	30	23.4	22
9:11	60	23.4	19
12:21	250	22.6	16
8:13	1440	21.9	13

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#270 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.156	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 1567-52 **Review Date** HS  
**Sample ID:** MM57THRU62\_SIEVE\_02152017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating)							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/9/2017	4:00	3/9/2017	4:00	3/10/2017	5:00
Date/Time End	3/9/2017	8:00	3/9/2017	8:00	3/10/2017	9:00
I) Tare No.	1		5		3	
J) Weight of Tare, grams	49.11		52.74		51.35	
K) Weight of Oven-Dried Soil + Tare, grams	62.84		78.18		72.16	
L) Weight of Oven- Dried Soil, grams [K - J]	13.74		25.44		20.81	
M) Weight of Ignited Soil + Tare, grams	61.47		75.37		69.69	
N) Ash, grams [M - J]	12.36		22.63		18.34	
O) Ash Content, % [N *100 / L]	90.0%		88.9%		88.2%	
P) Organic Matter, % [100 - O]	10.0%		11.1%		11.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

**Equipment used:**

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-53

Date Reviewed: 4/13/2017

SAMPLE ID: MM68\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Yellowish Green Sandy CLAY

Pan ID No.	19	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	113.23	
(B) SPLIT AIR-DRIED WEIGHT (g)	51.93	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/9/2017
Sieve Analysis	3/12/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	25.88	
WEIGHT DRY SOIL & TARE (g)	25.76	
Tare #: <u>50</u>	WEIGHT TARE (g)	15.59
(C) WEIGHT AIR-DRIED SOIL (g)	10.29	
(D) WEIGHT OVEN-DRIED SOIL (g)	10.17	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9883	
CORRECTED SPLIT WEIGHT (B x E)	51.32	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	111.91
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	3.3%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.35	99.7%
5.4.143	#20	0.19	99.3%
5.4.58	#40	0.65	98.4%
5.4.145	#60	1.14	97.5%
5.4.162	#200	2.51	94.8%
5.4.181	#230	3.02	93.8%
5.4.189	#270	3.32	93.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-53 **Review Date** HS  
**Sample ID:** MM68\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			3/13/2017	7:00				
A) Tare No.			13					
B) Tare Weight, grams			54.36					
C) Wet Soil + Tare, grams - see comment			83.19					
D) Dry Soil + Tare, grams (initial)			83.11					
Date/Time of initial Weight of Dry Soil Taken (initial)			3/14/2017	0.30				
E) Dry Soil + Tare, grams (1 Hr. additional heating)			83.11					
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)			3/14/2017	0.35				
F) Weight of Dry Soil, grams [E - B]			28.75					
G) Weight of Moisture, grams [C - E]			0.08					
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)			0.3%					

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/14/2017	11:00		
Date/Time End			4/14/2017	16:00		
I) Tare No.			13			
J) Weight of Tare, grams			54.38			
K) Weight of Oven-Dried Soil + Tare, grams			82.78			
L) Weight of Oven- Dried Soil, grams [K - J]			28.41			
M) Weight of Ignited Soil + Tare, grams			81.85			
N) Ash, grams [M - J]			27.48			
O) Ash Content, % [N *100 / L]			96.7%			
P) Organic Matter, % [100 - O]			3.3%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-54

Date Reviewed: 4/14/2017

SAMPLE ID: MM53\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Dark Gray Sandy CLAY

Pan ID No.	ND
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	ND ND
(A) TOTAL AIR-DRIED WEIGHT (g)	47.19
(B) SPLIT AIR-DRIED WEIGHT (g)	45.91
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	17.4%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	3.46	92.5%
5.4.58	#40	7.46	83.8%
5.4.145	#60	9.54	79.2%
5.4.162	#200	15.24	66.8%
5.4.181	#230	16.86	63.3%
5.4.189	#270	18.79	59.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-54 **Review Date** HS  
**Sample ID:** MM53\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				ND	ND
A) Tare No.				12	
B) Tare Weight, grams				52.39	
C) Wet Soil + Tare, grams - see comment				72.68	
D) Dry Soil + Tare, grams (initial)				70.45	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/13/2017	9:03
E) Dry Soil + Tare, grams (1 Hr. additional heating)				70.41	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				3/13/2017	10:15
F) Weight of Dry Soil, grams [E - B]				18.06	
G) Weight of Moisture, grams [C - E]				2.23	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				12.3%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/14/2017 10:30	
Date/Time End		4/14/2017 15:30	
I) Tare No.		12	
J) Weight of Tare, grams		52.41	
K) Weight of Oven-Dried Soil + Tare, grams		70.50	
L) Weight of Oven- Dried Soil, grams [K - J]		18.09	
M) Weight of Ignited Soil + Tare, grams		67.34	
N) Ash, grams [M - J]		14.94	
O) Ash Content, % [N *100 / L]		82.6%	
P) Organic Matter, % [100 - O]		17.4%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-55

Date Reviewed: 4/14/2017

SAMPLE ID: MM64\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Grayish Brown Sandy CLAY

Pan ID No.	ND
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	ND ND
(A) TOTAL AIR-DRIED WEIGHT (g)	46.55
(B) SPLIT AIR-DRIED WEIGHT (g)	45.90
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	14.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.43	99.1%
5.4.58	#40	1.71	96.3%
5.4.145	#60	2.96	93.6%
5.4.162	#200	7.92	82.7%
5.4.181	#230	9.76	78.7%
5.4.189	#270	11.60	74.7%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-55 **Review Date** HS  
**Sample ID:** MM64\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/14/2017	6:00		
Date/Time End			4/14/2017	11:00		
I) Tare No.			11			
J) Weight of Tare, grams			51.75			
K) Weight of Oven-Dried Soil + Tare, grams			72.72			
L) Weight of Oven- Dried Soil, grams [K - J]			20.97			
M) Weight of Ignited Soil + Tare, grams			69.64			
N) Ash, grams [M - J]			17.89			
O) Ash Content, % [N *100 / L]			85.3%			
P) Organic Matter, % [100 - O]			14.7%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-56

Date Reviewed: 4/13/2017

SAMPLE ID: MM50\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: ML Greenish Brown Sandy SILT w/ Trace of Organic Materials

Pan ID No.	9	
Air Dry Start Date/Time	3/20/2017	12:00
Air Dry End Date/Time	3/24/2017	8:00
(A) TOTAL AIR-DRIED WEIGHT (g)	89.15	
(B) SPLIT AIR-DRIED WEIGHT (g)	50.95	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/25/2017
Sieve Analysis	4/30/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	24.79	
WEIGHT DRY SOIL & TARE (g)	24.61	
Tare #:	<u>42</u>	WEIGHT TARE (g)
		13.35
(C) WEIGHT AIR-DRIED SOIL (g)	11.44	
(D) WEIGHT OVEN-DRIED SOIL (g)	11.26	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9843	
CORRECTED SPLIT WEIGHT (B x E)	50.15	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	87.75
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	4.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.22	99.6%
5.4.197	#40	0.57	98.9%
5.4.198	#60	0.80	98.4%
5.4.199	#200	2.59	94.8%
5.4.200	#230	4.40	91.2%
5.4.201	#270	6.79	86.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-56 **Review Date** HS  
**Sample ID:** MM50\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			3/29/2017	6:00		
Date/Time End			3/29/2017	10:30		
I) Tare No.			10			
J) Weight of Tare, grams			52.84			
K) Weight of Oven-Dried Soil + Tare, grams			75.61			
L) Weight of Oven- Dried Soil, grams [K - J]			22.77			
M) Weight of Ignited Soil + Tare, grams			74.54			
N) Ash, grams [M - J]			21.70			
O) Ash Content, % [N *100 / L]			95.3%			
P) Organic Matter, % [100 - O]			4.7%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-57

Date Reviewed: 4/14/2017

SAMPLE ID: MM67\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Grayish Green Sandy CLAY

Pan ID No.	ND
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	ND ND
(A) TOTAL AIR-DRIED WEIGHT (g)	37.91
(B) SPLIT AIR-DRIED WEIGHT (g)	36.74
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	14.6%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.11	99.7%
5.4.58	#40	0.31	99.2%
5.4.145	#60	0.54	98.5%
5.4.162	#200	1.93	94.7%
5.4.181	#230	2.58	93.0%
5.4.189	#270	3.10	91.6%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-57 **Review Date** HS  
**Sample ID:** MM67\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			4/16/2017	6:00				
A) Tare No.				25				
B) Tare Weight, grams				52.24				
C) Wet Soil + Tare, grams - see comment				68.14				
D) Dry Soil + Tare, grams (initial)				67.72				
Date/Time of initial Weight of Dry Soil Taken (initial)			4/17/2017	0.22				
E) Dry Soil + Tare, grams (1 Hr. additional heating)				67.69				
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)			4/17/2017	0.28				
F) Weight of Dry Soil, grams [E - B]				15.48				
G) Weight of Moisture, grams [C - E]				0.42				
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				2.7%				

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/17/2017	6:45		
Date/Time End			4/17/2017	11:00		
I) Tare No.				25		
J) Weight of Tare, grams				52.27		
K) Weight of Oven-Dried Soil + Tare, grams				67.71		
L) Weight of Oven- Dried Soil, grams [K - J]				15.44		
M) Weight of Ignited Soil + Tare, grams				65.46		
N) Ash, grams [M - J]				13.18		
O) Ash Content, % [N *100 / L]				85.4%		
P) Organic Matter, % [100 - O]				14.6%		

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-58

Date Reviewed: 4/14/2017

SAMPLE ID: MM52\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Yellowish Gray Sandy CLAY

Pan ID No.	ND
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	ND ND
(A) TOTAL AIR-DRIED WEIGHT (g)	31.02
(B) SPLIT AIR-DRIED WEIGHT (g)	29.36
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	14.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.10	99.7%
5.4.58	#40	0.17	99.4%
5.4.145	#60	0.24	99.2%
5.4.162	#200	1.13	96.2%
5.4.181	#230	1.68	94.3%
5.4.189	#270	2.15	92.7%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-58 **Review Date** HS  
**Sample ID:** MM52\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			ND	ND				
A) Tare No.			9					
B) Tare Weight, grams			53.41					
C) Wet Soil + Tare, grams - see comment			68.04					
D) Dry Soil + Tare, grams (initial)			67.90					
Date/Time of initial Weight of Dry Soil Taken (initial)			4/17/2017	0.21				
E) Dry Soil + Tare, grams (1 Hr. additional heating)			67.90					
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)			4/17/2017	0.26				
F) Weight of Dry Soil, grams [E - B]			14.49					
G) Weight of Moisture, grams [C - E]			0.14					
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)			1.0%					

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/17/2017	6:15		
Date/Time End			4/17/2017	11:28		
I) Tare No.			9			
J) Weight of Tare, grams			53.42			
K) Weight of Oven-Dried Soil + Tare, grams			67.85			
L) Weight of Oven- Dried Soil, grams [K - J]			14.43			
M) Weight of Ignited Soil + Tare, grams			65.76			
N) Ash, grams [M - J]			12.35			
O) Ash Content, % [N *100 / L]			85.5%			
P) Organic Matter, % [100 - O]			14.5%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-59

Date Reviewed: 4/14/2017

SAMPLE ID: MM71\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	ND
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	ND ND
(A) TOTAL AIR-DRIED WEIGHT (g)	25.16
(B) SPLIT AIR-DRIED WEIGHT (g)	23.30
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	13.4%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	1.10	95.3%
5.4.58	#40	1.61	93.1%
5.4.145	#60	1.89	91.9%
5.4.162	#200	2.64	88.7%
5.4.181	#230	2.88	87.6%
5.4.189	#270	3.07	86.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-59 **Review Date** HS  
**Sample ID:** MM71\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			ND	ND				
A) Tare No.			8					
B) Tare Weight, grams			50.67					
C) Wet Soil + Tare, grams - see comment			67.39					
D) Dry Soil + Tare, grams (initial)			67.20					
Date/Time of initial Weight of Dry Soil Taken (initial)			4/17/2017	0.21				
E) Dry Soil + Tare, grams (1 Hr. additional heating)			67.18					
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)			4/17/2017	0.26				
F) Weight of Dry Soil, grams [E - B]			16.53					
G) Weight of Moisture, grams [C - E]			0.19					
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)			1.1%					

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/17/2017	6:20		
Date/Time End			4/17/2017	11:25		
I) Tare No.			8			
J) Weight of Tare, grams			50.67			
K) Weight of Oven-Dried Soil + Tare, grams			67.20			
L) Weight of Oven- Dried Soil, grams [K - J]			16.53			
M) Weight of Ignited Soil + Tare, grams			64.98			
N) Ash, grams [M - J]			14.31			
O) Ash Content, % [N *100 / L]			86.6%			
P) Organic Matter, % [100 - O]			13.4%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-60

Date Reviewed: 4/14/2017

SAMPLE ID: MM56\_10202012\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Yellowish Green Sandy CLAY

Pan ID No.	ND	ND
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	ND	ND
(A) TOTAL AIR-DRIED WEIGHT (g)	36.14	
(B) SPLIT AIR-DRIED WEIGHT (g)	33.85	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	NP	
WEIGHT DRY SOIL & TARE (g)	NP	
Tare #:	<u>NP</u>	WEIGHT TARE (g)
		NP
(C) WEIGHT AIR-DRIED SOIL (g)	0	
(D) WEIGHT OVEN-DRIED SOIL (g)	0	
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!	
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	12.0%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.24	99.3%
5.4.58	#40	0.45	98.8%
5.4.145	#60	0.62	98.3%
5.4.162	#200	1.26	96.5%
5.4.181	#230	1.40	96.1%
5.4.189	#270	1.52	95.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-60 **Review Date** HS  
**Sample ID:** MM56\_10202012\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			ND	ND				
A) Tare No.			7					
B) Tare Weight, grams			52.40					
C) Wet Soil + Tare, grams - see comment			67.75					
D) Dry Soil + Tare, grams (initial)			66.65					
Date/Time of initial Weight of Dry Soil Taken (initial)			4/17/2017	0.21				
E) Dry Soil + Tare, grams (1 Hr. additional heating)			66.63					
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)			4/17/2017	0.26				
F) Weight of Dry Soil, grams [E - B]			14.25					
G) Weight of Moisture, grams [C - E]			1.10					
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)			7.7%					

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/17/2017	6:25		
Date/Time End			4/17/2017	11:15		
I) Tare No.			7			
J) Weight of Tare, grams			52.42			
K) Weight of Oven-Dried Soil + Tare, grams			66.62			
L) Weight of Oven- Dried Soil, grams [K - J]			14.20			
M) Weight of Ignited Soil + Tare, grams			64.91			
N) Ash, grams [M - J]			12.50			
O) Ash Content, % [N *100 / L]			88.0%			
P) Organic Matter, % [100 - O]			12.0%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-61

Date Reviewed: 4/14/2017

SAMPLE ID: MM69\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Black Sandy CLAY

Pan ID No.	ND
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	ND ND
(A) TOTAL AIR-DRIED WEIGHT (g)	42.84
(B) SPLIT AIR-DRIED WEIGHT (g)	41.04
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	14.9%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	1.17	97.1%
5.4.58	#40	3.70	91.0%
5.4.145	#60	5.16	87.4%
5.4.162	#200	8.42	79.5%
5.4.181	#230	9.53	76.8%
5.4.189	#270	10.27	75.0%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-61 **Review Date** HS  
**Sample ID:** MM69\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			ND	ND				
A) Tare No.			24					
B) Tare Weight, grams			51.75					
C) Wet Soil + Tare, grams - see comment			66.35					
D) Dry Soil + Tare, grams (initial)			66.18					
Date/Time of initial Weight of Dry Soil Taken (initial)			4/17/2017	0.21				
E) Dry Soil + Tare, grams (1 Hr. additional heating)			66.17					
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)			4/17/2017	0.27				
F) Weight of Dry Soil, grams [E - B]			14.43					
G) Weight of Moisture, grams [C - E]			0.17					
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)			1.2%					

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/17/2017	6:30		
Date/Time End			4/17/2017	11:18		
I) Tare No.			24			
J) Weight of Tare, grams			51.76			
K) Weight of Oven-Dried Soil + Tare, grams			66.17			
L) Weight of Oven- Dried Soil, grams [K - J]			14.41			
M) Weight of Ignited Soil + Tare, grams			64.02			
N) Ash, grams [M - J]			12.26			
O) Ash Content, % [N *100 / L]			85.1%			
P) Organic Matter, % [100 - O]			14.9%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-62

Date Reviewed: 4/13/2017

SAMPLE ID: MM54\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Yellowish Green Sandy CLAY w/ Organic Material

Pan ID No.	C-16	
Air Dry Start Date/Time	3/10/2017	10:00
Air Dry End Date/Time	3/11/2017	13:00
(A) TOTAL AIR-DRIED WEIGHT (g)	100.41	
(B) SPLIT AIR-DRIED WEIGHT (g)	50.63	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/16/2017
Sieve Analysis	3/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)		26.07
WEIGHT DRY SOIL & TARE (g)		26.01
Tare #:	<u>88</u>	WEIGHT TARE (g)
		13.43
(C) WEIGHT AIR-DRIED SOIL (g)		12.64
(D) WEIGHT OVEN-DRIED SOIL (g)		12.58
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9953
CORRECTED SPLIT WEIGHT (B x E)		50.39

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	99.94
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	2.4%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.20	3/8"	0.00	100.0%
5.4.52	#4	0.00	100.0%
5.4.58G	(G) #10	0.00	100.0%
5.4.144	#20	0.15	99.7%
5.4.108	#40	0.29	99.4%
5.4.146	#60	0.36	99.3%
5.4.187	#200	1.22	97.6%
5.4.188	#230	2.86	94.3%
5.4.130	#270	4.48	91.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-62 **Review Date** HS  
**Sample ID:** MM54\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			3/12/2017	8:45				
A) Tare No.			23					
B) Tare Weight, grams			52.70					
C) Wet Soil + Tare, grams - see comment			70.97					
D) Dry Soil + Tare, grams (initial)			70.86					
Date/Time of initial Weight of Dry Soil Taken (initial)			3/13/2017	0:38				
E) Dry Soil + Tare, grams (1 Hr. additional heating )			70.83					
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )			ND	ND				
F) Weight of Dry Soil, grams [E - B]			18.16					
G) Weight of Moisture, grams [C - E]			0.11					
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)			0.6%					

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/14/2017	10:30		
Date/Time End			4/14/2017	15:00		
I) Tare No.			23			
J) Weight of Tare, grams			52.73			
K) Weight of Oven-Dried Soil + Tare, grams			70.90			
L) Weight of Oven- Dried Soil, grams [K - J]			18.17			
M) Weight of Ignited Soil + Tare, grams			70.46			
N) Ash, grams [M - J]			17.73			
O) Ash Content, % [N *100 / L]			97.6%			
P) Organic Matter, % [100 - O]			2.4%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-63

Date Reviewed: 4/14/2017

SAMPLE ID: MM55\_10202016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Black Sandy CLAY

Pan ID No.	ND
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	ND ND
(A) TOTAL AIR-DRIED WEIGHT (g)	54.74
(B) SPLIT AIR-DRIED WEIGHT (g)	52.57
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
$[(A - G) \times E] + G$ (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	15.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.01	100.0%
5.4.58	#40	0.24	99.5%
5.4.145	#60	0.40	99.2%
5.4.162	#200	1.62	96.9%
5.4.181	#230	2.34	95.5%
5.4.189	#270	2.95	94.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-63 **Review Date** HS  
**Sample ID:** MM55\_10202016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			ND	ND				
A) Tare No.			22					
B) Tare Weight, grams			52.07					
C) Wet Soil + Tare, grams - see comment			66.32					
D) Dry Soil + Tare, grams (initial)			66.14					
Date/Time of initial Weight of Dry Soil Taken (initial)			4/17/2017	0.21				
E) Dry Soil + Tare, grams (1 Hr. additional heating)			66.10					
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)			4/17/2017	0.27				
F) Weight of Dry Soil, grams [E - B]			14.07					
G) Weight of Moisture, grams [C - E]			0.18					
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)			1.3%					

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/17/2017	6:35		
Date/Time End			4/17/2017	10:45		
I) Tare No.			22			
J) Weight of Tare, grams			52.09			
K) Weight of Oven-Dried Soil + Tare, grams			66.12			
L) Weight of Oven- Dried Soil, grams [K - J]			14.02			
M) Weight of Ignited Soil + Tare, grams			63.92			
N) Ash, grams [M - J]			11.83			
O) Ash Content, % [N *100 / L]			84.3%			
P) Organic Matter, % [100 - O]			15.7%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-64

Date Reviewed: 4/13/2017

SAMPLE ID: MM65\_10192016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Greenish Brown Sandy CLAY w/ Organic Material

Pan ID No.	C-131	
Air Dry Start Date/Time	3/13/2017	9:00
Air Dry End Date/Time	3/14/2017	10:00
(A) TOTAL AIR-DRIED WEIGHT (g)	70.68	
(B) SPLIT AIR-DRIED WEIGHT (g)	51.63	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/15/2017
Sieve Analysis	3/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	25.85	
WEIGHT DRY SOIL & TARE (g)	25.62	
Tare #: <u>24</u>	WEIGHT TARE (g)	15.62
(C) WEIGHT AIR-DRIED SOIL (g)	10.23	
(D) WEIGHT OVEN-DRIED SOIL (g)	10	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9775	
CORRECTED SPLIT WEIGHT (B x E)	50.47	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	69.09
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	14.9%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.50	99.0%
5.4.58	#40	1.32	97.4%
5.4.145	#60	2.06	95.9%
5.4.162	#200	4.82	90.4%
5.4.181	#230	6.08	88.0%
5.4.189	#270	7.12	85.9%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/13/2017  
**Lab ID No.** 23-64 **Review Date** HS  
**Sample ID:** MM65\_10192016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							NP	NP
A) Tare No.							NP	
B) Tare Weight, grams							NP	
C) Wet Soil + Tare, grams - see comment							NP	
D) Dry Soil + Tare, grams (initial)							NP	
Date/Time of initial Weight of Dry Soil Taken (initial)							NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating )							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							NP	NP
F) Weight of Dry Soil, grams [E - B]							0.00	
G) Weight of Moisture, grams [C - E]							0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							#DIV/0!	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/14/2017	11:00		
Date/Time End			4/14/2017	16:00		
I) Tare No.			21			
J) Weight of Tare, grams			52.34			
K) Weight of Oven-Dried Soil + Tare, grams			67.43			
L) Weight of Oven- Dried Soil, grams [K - J]			15.09			
M) Weight of Ignited Soil + Tare, grams			65.18			
N) Ash, grams [M - J]			12.84			
O) Ash Content, % [N *100 / L]			85.1%			
P) Organic Matter, % [100 - O]			14.9%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-65

Date Reviewed: 5/2/2017

SAMPLE ID: VE60\_10152016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Brown Sandy CLAY with Organic Material

Pan ID No.	1T
Air Dry Start Date/Time	4/11/2017 9:23
Air Dry End Date/Time	4/17/2017 9:06
(A) TOTAL AIR-DRIED WEIGHT (g)	33.59
(B) SPLIT AIR-DRIED WEIGHT (g)	25.01
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	4/24/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	27.3%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	1.90	92.4%
5.4.196	#20	3.92	84.3%
5.4.197	#40	5.83	76.7%
5.4.198	#60	8.48	66.1%
5.4.199	#200	8.78	64.9%
5.4.200	#230	8.96	64.2%
5.4.201	#270	9.13	63.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-65 **Review Date** HS  
**Sample ID:** VE60\_10152016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
1T	22.37	129.35	55.96	33.59	73.39	218.5%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	9:23
A) Tare No.				13C	
B) Tare Weight, grams				14.34	
C) Wet Soil + Tare, grams - see comment				60.32	
D) Dry Soil + Tare, grams (initial)				28.66	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/20/2017	6:15
E) Dry Soil + Tare, grams (1 Hr. additional heating)				28.63	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/20/2017	7:30
F) Weight of Dry Soil, grams [E - B]				14.32	
G) Weight of Moisture, grams [C - E]				31.66	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				221.1%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/20/2017	ND
Date/Time End		ND	ND
I) Tare No.		9	
J) Weight of Tare, grams		53.41	
K) Weight of Oven-Dried Soil + Tare, grams		67.08	
L) Weight of Oven- Dried Soil, grams [K - J]		13.67	
M) Weight of Ignited Soil + Tare, grams		63.34	
N) Ash, grams [M - J]		9.93	
O) Ash Content, % [N *100 / L]		72.7%	
P) Organic Matter, % [100 - O]		27.3%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 23-66  
 SAMPLE ID: VE59\_10152016\_SED  
 SAMPLE DESCRIPTION: MH Gray Silty SAND w/ Organic Material

Date Reviewed: 5/2/2017  
 Reviewed By: HS

Pan ID No.	7T
Air Dry Start Date/Time	4/11/2017 9:32
Air Dry End Date/Time	4/14/2017 10:19
(A) TOTAL AIR-DRIED WEIGHT (g)	48.47
(B) SPLIT AIR-DRIED WEIGHT (g)	32.77
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	4/16/2017
Sieve Analysis	4/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	24.05
WEIGHT DRY SOIL & TARE (g)	23.75
Tare #: <u>A-18</u> WEIGHT TARE (g)	13.35
(C) WEIGHT AIR-DRIED SOIL (g)	10.7
(D) WEIGHT OVEN-DRIED SOIL (g)	10.4
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.972
CORRECTED SPLIT WEIGHT (B x E)	31.85

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	47.11
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	16.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.75	97.6%
5.4.197	#40	2.80	91.2%
5.4.198	#60	4.98	84.4%
5.4.199	#200	11.17	64.9%
5.4.200	#230	12.06	62.1%
5.4.201	#270	13.10	58.9%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-66 **Review Date** HS  
**Sample ID:** VE59\_10152016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
7T	22.38	134.45	70.94	48.56	63.51	131%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	9:32
A) Tare No.				19C	
B) Tare Weight, grams				14.41	
C) Wet Soil + Tare, grams - see comment				60.50	
D) Dry Soil + Tare, grams (initial)				34.61	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/20/2017	5:00
E) Dry Soil + Tare, grams (1 Hr. additional heating )				34.59	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/20/2017	6:00
F) Weight of Dry Soil, grams [E - B]				20.18	
G) Weight of Moisture, grams [C - E]				25.91	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				128.4%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/20/2017 7:45	
Date/Time End		4/20/2017 11:45	
I) Tare No.		3	
J) Weight of Tare, grams		51.35	
K) Weight of Oven-Dried Soil + Tare, grams		69.38	
L) Weight of Oven- Dried Soil, grams [K - J]		18.03	
M) Weight of Ignited Soil + Tare, grams		66.42	
N) Ash, grams [M - J]		15.07	
O) Ash Content, % [N *100 / L]		83.5%	
P) Organic Matter, % [100 - O]		16.5%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-67

Date Reviewed: 4/14/2017

SAMPLE ID: VE58\_10152016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	100	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	3/25/2017	15:23
(A) TOTAL AIR-DRIED WEIGHT (g)	84.86	
(B) SPLIT AIR-DRIED WEIGHT (g)	50.59	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/25/2017
Sieve Analysis	3/30/2017
Hydrometer	3/27/2017

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	21.17
WEIGHT DRY SOIL & TARE (g)	20.94
Tare #: <u>30</u> WEIGHT TARE (g)	11.11
(C) WEIGHT AIR-DRIED SOIL (g)	10.06
(D) WEIGHT OVEN-DRIED SOIL (g)	9.83
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9771
CORRECTED SPLIT WEIGHT (B x E)	49.43

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	82.93
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	10.4%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.76	99.1%
5.4.196	#20	0.16	98.8%
5.4.197	#40	0.44	98.2%
5.4.198	#60	0.95	97.2%
5.4.199	#200	5.47	88.1%
5.4.200	#230	6.82	85.4%
5.4.201	#270	8.51	82.0%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
10:47	9.2.03	GC-2	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
10:50	2	23.8	31
10:53	5	23.8	24
11:03	15	23.8	22
11:18	30	23.7	20
11:48	60	23.7	18.5
2:58	250	23.2	15
11:50	1440	21.5	13

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-67 **Review Date** HS  
**Sample ID:** VE58\_10152016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
100	22.81	180.43	107.67	84.86	72.76	85.7%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/22/2017	14:27
A) Tare No.				35	
B) Tare Weight, grams				15.52	
C) Wet Soil + Tare, grams - see comment				49.57	
D) Dry Soil + Tare, grams (initial)				34.33	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)				34.32	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				18.81	
G) Weight of Moisture, grams [C - E]				15.24	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				81.0%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		ND	ND
Date/Time End		ND	ND
I) Tare No.		M	
J) Weight of Tare, grams		50.78	
K) Weight of Oven-Dried Soil + Tare, grams		60.75	
L) Weight of Oven- Dried Soil, grams [K - J]		9.97	
M) Weight of Ignited Soil + Tare, grams		59.71	
N) Ash, grams [M - J]		8.94	
O) Ash Content, % [N *100 / L]		89.6%	
P) Organic Matter, % [100 - O]		10.4%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-68

Date Reviewed: 5/2/2017

SAMPLE ID: VE53\_10152016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY

Pan ID No.	10T	
Air Dry Start Date/Time	4/11/2017	8:53
Air Dry End Date/Time	4/17/2017	9:35
(A) TOTAL AIR-DRIED WEIGHT (g)	48.13	
(B) SPLIT AIR-DRIED WEIGHT (g)	32.06	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/17/2017
Sieve Analysis	4/24/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		27.25	
WEIGHT DRY SOIL & TARE (g)		26.99	
Tare #:	<u>08</u>	WEIGHT TARE (g)	15.49
(C) WEIGHT AIR-DRIED SOIL (g)		11.76	
(D) WEIGHT OVEN-DRIED SOIL (g)		11.5	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9779	
CORRECTED SPLIT WEIGHT (B x E)		31.35	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	47.08
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	17.8%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.56	98.8%
5.4.196	#20	0.88	96.0%
5.4.197	#40	2.63	90.5%
5.4.198	#60	4.29	85.3%
5.4.199	#200	7.98	73.7%
5.4.200	#230	8.99	70.5%
5.4.201	#270	10.30	66.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-68 **Review Date** HS  
**Sample ID:** VE53\_10152016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
10T	22.72	137.95	70.85	48.13	67.1	139%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	8:53
A) Tare No.				11C	
B) Tare Weight, grams				14.36	
C) Wet Soil + Tare, grams - see comment				52.38	
D) Dry Soil + Tare, grams (initial)				30.02	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/20/2017	6:10
E) Dry Soil + Tare, grams (1 Hr. additional heating )				29.99	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/20/2017	7:00
F) Weight of Dry Soil, grams [E - B]				15.66	
G) Weight of Moisture, grams [C - E]				22.36	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				142.8%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/20/2017	ND
Date/Time End		ND	ND
I) Tare No.		12	
J) Weight of Tare, grams		52.40	
K) Weight of Oven-Dried Soil + Tare, grams		67.58	
L) Weight of Oven- Dried Soil, grams [K - J]		15.17	
M) Weight of Ignited Soil + Tare, grams		64.87	
N) Ash, grams [M - J]		12.47	
O) Ash Content, % [N *100 / L]		82.2%	
P) Organic Matter, % [100 - O]		17.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-69

Date Reviewed: 5/2/2017

SAMPLE ID: VE52\_10152016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: SC Gray SAND w/ Organic Material

Pan ID No.	2T	
Air Dry Start Date/Time	4/11/2017	9:18
Air Dry End Date/Time	4/14/2017	10:53
(A) TOTAL AIR-DRIED WEIGHT (g)	154.43	
(B) SPLIT AIR-DRIED WEIGHT (g)	51.89	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		25.03	
WEIGHT DRY SOIL & TARE (g)		24.56	
Tare #:	<u>1C</u>	WEIGHT TARE (g)	14.3
(C) WEIGHT AIR-DRIED SOIL (g)		10.73	
(D) WEIGHT OVEN-DRIED SOIL (g)		10.26	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9562	
CORRECTED SPLIT WEIGHT (B x E)		49.62	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	148.64
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	1.8%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	6.38	95.7%
5.4.195	(G) #10	22.32	85.0%
5.4.196	#20	14.95	59.4%
5.4.197	#40	29.30	34.8%
5.4.198	#60	37.75	20.3%
5.4.199	#200	45.40	7.2%
5.4.200	#230	45.91	6.4%
5.4.201	#270	46.37	5.6%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-69 **Review Date** HS  
**Sample ID:** VE52\_10152016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
2T	23.37	206.62	177.87	154.5	28.75	19%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	9:18
A) Tare No.				12C	
B) Tare Weight, grams				14.26	
C) Wet Soil + Tare, grams - see comment				66.30	
D) Dry Soil + Tare, grams (initial)				57.39	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/18/2017	8:16
E) Dry Soil + Tare, grams (1 Hr. additional heating )				57.37	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/18/2017	9:16
F) Weight of Dry Soil, grams [E - B]				43.13	
G) Weight of Moisture, grams [C - E]				8.91	
H) Moisture Content, % [G * 100 / F]				20.7%	
(based on oven-dried weight)					

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/18/2017	ND
Date/Time End		ND	ND
I) Tare No.		18	
J) Weight of Tare, grams		53.87	
K) Weight of Oven-Dried Soil + Tare, grams		95.90	
L) Weight of Oven- Dried Soil, grams [K - J]		42.03	
M) Weight of Ignited Soil + Tare, grams		95.12	
N) Ash, grams [M - J]		41.25	
O) Ash Content, % [N *100 / L]		98.2%	
P) Organic Matter, % [100 - O]		1.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-70

Date Reviewed: 5/2/2017

SAMPLE ID: VE50\_10152016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY w/ Organic Material

Pan ID No.	A-9
Air Dry Start Date/Time	4/11/2017 7:20
Air Dry End Date/Time	4/17/2017 10:00
(A) TOTAL AIR-DRIED WEIGHT (g)	50.10
(B) SPLIT AIR-DRIED WEIGHT (g)	36.00
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	4/17/2017
Sieve Analysis	4/24/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	27.5
WEIGHT DRY SOIL & TARE (g)	27.14
Tare #: <u>46</u> WEIGHT TARE (g)	15.69
(C) WEIGHT AIR-DRIED SOIL (g)	11.81
(D) WEIGHT OVEN-DRIED SOIL (g)	11.45
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9695
CORRECTED SPLIT WEIGHT (B x E)	34.9

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	48.57
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	17.6%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.05	99.9%
5.4.196	#20	2.63	92.4%
5.4.197	#40	5.24	84.9%
5.4.198	#60	7.15	79.4%
5.4.199	#200	10.77	69.1%
5.4.200	#230	11.84	66.0%
5.4.201	#270	12.89	63.0%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-70 **Review Date** HS  
**Sample ID:** VE50\_10152016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
A-9	22.19	141.41	72.29	50.1	69.12	138%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	7:20
A) Tare No.				91A	
B) Tare Weight, grams				12.89	
C) Wet Soil + Tare, grams - see comment				50.87	
D) Dry Soil + Tare, grams (initial)				29.55	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/20/2017	7:15
E) Dry Soil + Tare, grams (1 Hr. additional heating )				29.53	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/20/2017	7:30
F) Weight of Dry Soil, grams [E - B]				16.66	
G) Weight of Moisture, grams [C - E]				21.32	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				128.0%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/20/2017	ND
Date/Time End		ND	ND
I) Tare No.		22	
J) Weight of Tare, grams		52.08	
K) Weight of Oven-Dried Soil + Tare, grams		68.43	
L) Weight of Oven- Dried Soil, grams [K - J]		16.35	
M) Weight of Ignited Soil + Tare, grams		65.55	
N) Ash, grams [M - J]		13.47	
O) Ash Content, % [N *100 / L]		82.4%	
P) Organic Matter, % [100 - O]		17.6%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 24567-71

Date Reviewed: 4/14/2017

SAMPLE ID: VE58THRU60\_SIEVE\_03072017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	A-8
Air Dry Start Date/Time	3/24/2017 14:00
Air Dry End Date/Time	3/25/2017 13:38
(A) TOTAL AIR-DRIED WEIGHT (g)	89.93
(B) SPLIT AIR-DRIED WEIGHT (g)	51.24
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/25/2017
Sieve Analysis	3/30/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.82
WEIGHT DRY SOIL & TARE (g)	25.73
Tare #: <u>49</u> WEIGHT TARE (g)	15.63
(C) WEIGHT AIR-DRIED SOIL (g)	10.19
(D) WEIGHT OVEN-DRIED SOIL (g)	10.1
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9912
CORRECTED SPLIT WEIGHT (B x E)	50.79

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	89.14
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	18.8%
550 °C	18.9%
750 °C	26.3%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.79	98.5%
5.4.197	#40	3.32	93.5%
5.4.198	#60	8.19	84.0%
5.4.199	#200	20.73	59.5%
5.4.200	#230	22.20	56.7%
5.4.201	#270	23.34	54.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 24567-71 **Review Date** HS  
**Sample ID:** VE58THRU60\_SIEVE\_03072017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
A-8	46.36	302.87	136.29	89.93	166.58	185%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/23/2017	12:06
A) Tare No.							64.00	
B) Tare Weight, grams							15.43	
C) Wet Soil + Tare, grams - see comment							37.99	
D) Dry Soil + Tare, grams (initial)							22.55	
Date/Time of initial Weight of Dry Soil Taken (initial)							3/24/2017	7:12
E) Dry Soil + Tare, grams (1 Hr. additional heating )							22.53	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )							3/24/2017	8:30
F) Weight of Dry Soil, grams [E - B]							7.10	
G) Weight of Moisture, grams [C - E]							15.46	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							217.7%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	4/4/2017	4:00	4/4/2017	4:00	4/4/2017	9:00
Date/Time End	4/4/2017	8:40	4/4/2017	8:40	4/4/2017	13:33
I) Tare No.	10		3		6	
J) Weight of Tare, grams	50.84		51.34		50.64	
K) Weight of Oven-Dried Soil + Tare, grams	61.56		64.07		59.78	
L) Weight of Oven- Dried Soil, grams [K - J]	10.72		12.73		9.13	
M) Weight of Ignited Soil + Tare, grams	59.54		61.66		57.37	
N) Ash, grams [M - J]	8.70		10.32		6.73	
O) Ash Content, % [N *100 / L]	81.2%		81.1%		73.7%	
P) Organic Matter, % [100 - O]	18.8%		18.9%		26.3%	

Remarks: **NP = Not Performed ; ND = Not Determined**

**Equipment used:**

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11

**DATASHEET FOR THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS**  
 Performed in Accordance with ASTM D 854 - 14 (Method B)

PROJECT NAME: USDC Penobscot  
 PROJECT NUMBER: 3616166052.04A.4A0225  
 ASSIGNMENT NO.: 17/013  
 LAB ID NO.: 24567-71  
 SAMPLE ID: VE58THRU60\_SIEVE\_03072017\_WCH  
 SAMPLE DESCRIPTION: Gray Organic SILT w/ Sand

Date Tested: 4/6/2017  
 Tested By: CS  
 Date Reviewed: 4/14/2017  
 Reviewed By: HS

(A) Mass of oven-dry soil solids, grams:	14.72
(B) Mass of pycnometer and water at test temperature (T), grams:	675.42
(C) Mass of pycnometer, water and soil solids at test temperature, grams:	684.26
(T) Test temperature of pycnometer, water and soil, °C:	22.6
(G) Specific Gravity of solids at test temperature:	2.503
(K) <i>Temperature coefficient:</i>	0.99943
$G_{20^{\circ}\text{C}}$ (G x K) <b>SPECIFIC GRAVITY @ 20°C:</b>	<b>2.502</b>

MATERIAL TESTED (check one):  - # 4       - # 10

PREPARATION METHOD (check one):  DRY       WET (dispersed)

DRY WEIGHT DETERMINATION (AFTER TEST)	
DRY WEIGHT & TARE (g):	<u>482.30</u>
TARE WEIGHT (g):	<u>467.58</u>
TARE NO.:	200

RECOMMENDED DRY MASS OF TEST SPECIMENS WHEN USING 500 mL PYCNOMETER BASED ON SOIL TYPES	SP, SP-SM:	100 ± 10
	SP-SC, SM, SC:	75 ± 10
	SILT OR CLAY:	50 ± 10

**CALCULATIONS:** (G) Specific Gravity of solids at test temperature:  $G = \frac{A}{[B - (C - A)]}$   
 (G<sub>20</sub>) Specific Gravity at 20°C: G x K

REMARKS:

RECORD WEIGHTS TO NEAREST 0.01g    RECORD TEMPERATURES TO NEAREST 0.1°C

TESTING EQUIPMENT			
THERMOMETER:	<u>8.1.04</u>	SCALES:	<u>3.1.141</u>
PYCNOMETER:	<u>P-20</u>	OVEN:	<u>5.2.02</u>

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-72

Date Reviewed: 5/2/2017

SAMPLE ID: VN80\_10172016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY w/ Organic Materials

Pan ID No.	3T
Air Dry Start Date/Time	4/11/2017 9:30
Air Dry End Date/Time	4/17/2017 7:30
(A) TOTAL AIR-DRIED WEIGHT (g)	32.26
(B) SPLIT AIR-DRIED WEIGHT (g)	31.23
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	4/24/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	17.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	2.33	92.5%
5.4.197	#40	4.73	84.9%
5.4.198	#60	6.50	79.2%
5.4.199	#200	10.37	66.8%
5.4.200	#230	11.11	64.4%
5.4.201	#270	12.03	61.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS

**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-72 **Review Date** HS  
**Sample ID:** VN80\_10172016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
3T	22.35	104.33	54.61	32.26	49.72	154%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	9:30
A) Tare No.				17C	
B) Tare Weight, grams				14.37	
C) Wet Soil + Tare, grams - see comment				44.97	
D) Dry Soil + Tare, grams (initial)				26.97	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/20/2017	6:08
E) Dry Soil + Tare, grams (1 Hr. additional heating )				26.95	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				3/20/2017	7:08
F) Weight of Dry Soil, grams [E - B]				12.60	
G) Weight of Moisture, grams [C - E]				18.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				142.9%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/20/2017	ND
Date/Time End		ND	ND
I) Tare No.		15	
J) Weight of Tare, grams		52.84	
K) Weight of Oven-Dried Soil + Tare, grams		65.10	
L) Weight of Oven- Dried Soil, grams [K - J]		12.26	
M) Weight of Ignited Soil + Tare, grams		62.96	
N) Ash, grams [M - J]		10.12	
O) Ash Content, % [N *100 / L]		82.5%	
P) Organic Matter, % [100 - O]		17.5%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 13-73

Date Reviewed: 4/14/2017

SAMPLE ID: VN74THRU80\_SIEVE\_03072017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: ML Gray Sandy SILT w/ Organic Materials

Pan ID No.	261-A
Air Dry Start Date/Time	3/22/2017 14:49
Air Dry End Date/Time	3/26/2017 13:24
(A) TOTAL AIR-DRIED WEIGHT (g)	244.49
(B) SPLIT AIR-DRIED WEIGHT (g)	51.02
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/26/2017
Sieve Analysis	4/2/2017
Hydrometer	3/31/2017

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	23.8
WEIGHT DRY SOIL & TARE (g)	23.01
Tare #: <u>A-31</u> WEIGHT TARE (g)	13.04
(C) WEIGHT AIR-DRIED SOIL (g)	10.76
(D) WEIGHT OVEN-DRIED SOIL (g)	9.97
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9266
CORRECTED SPLIT WEIGHT (B x E)	47.28

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	226.54
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	10.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.22	99.5%
5.4.197	#40	0.85	98.2%
5.4.198	#60	1.65	96.5%
5.4.199	#200	3.93	91.7%
5.4.200	#230	4.50	90.5%
5.4.201	#270	5.42	88.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
12:18	9.2.03	GC-1	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
12:21	2	24.6	42
12:24	5	24.6	33
12:34	15	24.6	25
12:49	30	24.4	22.5
1:19	60	24.2	20
4:29	250	23.4	17
12:21	1440	21.9	13

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 13-73 **Review Date** HS  
**Sample ID:** VN74THRU80\_SIEVE\_03072017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
261-A	59.09	599.41	303.58	244.49	295.83	121%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/22/2017	14:49
A) Tare No.				94	
B) Tare Weight, grams				15.49	
C) Wet Soil + Tare, grams - see comment				40.33	
D) Dry Soil + Tare, grams (initial)				26.51	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				ND	ND
F) Weight of Dry Soil, grams [E - B]				11.02	
G) Weight of Moisture, grams [C - E]				13.82	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				125.4%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/16/2017 4:00	
Date/Time End		4/16/2017 9:30	
I) Tare No.		2	
J) Weight of Tare, grams		51.83	
K) Weight of Oven-Dried Soil + Tare, grams		62.43	
L) Weight of Oven- Dried Soil, grams [K - J]		10.59	
M) Weight of Ignited Soil + Tare, grams		61.31	
N) Ash, grams [M - J]		9.48	
O) Ash Content, % [N *100 / L]		89.5%	
P) Organic Matter, % [100 - O]		10.5%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 23-74  
 SAMPLE ID: VN74THRU80\_SIEVE\_03072017\_WCH  
 SAMPLE DESCRIPTION: OL Gray Organic Silty SAND

Date Reviewed: 5/2/2017  
 Reviewed By: HS

Pan ID No.	8T	
Air Dry Start Date/Time	4/11/2017	9:06
Air Dry End Date/Time	4/17/2017	8:06
(A) TOTAL AIR-DRIED WEIGHT (g)	13.81	
(B) SPLIT AIR-DRIED WEIGHT (g)	13.09	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/17/2017
Sieve Analysis	4/24/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		NP	
WEIGHT DRY SOIL & TARE (g)		NP	
Tare #:	<u>NP</u>	WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)		0	
(D) WEIGHT OVEN-DRIED SOIL (g)		0	
(E) HYGR. MOIST. CORR FACTOR (D/C)		#DIV/0!	
CORRECTED SPLIT WEIGHT (B x E)		#DIV/0!	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	NP
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	49.8%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.84	93.6%
5.4.197	#40	2.63	79.9%
5.4.198	#60	4.71	64.0%
5.4.199	#200	7.98	39.0%
5.4.200	#230	8.42	35.7%
5.4.201	#270	8.69	33.6%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-74 **Review Date** HS  
**Sample ID:** VN74THRU80\_SIEVE\_03072017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
8T	23.94	75.31	37.25	13.31	38.06	286%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	9:06
A) Tare No.				62.00	
B) Tare Weight, grams				15.49	
C) Wet Soil + Tare, grams - see comment				39.25	
D) Dry Soil + Tare, grams (initial)				21.04	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/20/2017	6:09
E) Dry Soil + Tare, grams (1 Hr. additional heating )				21.00	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/20/2017	7:15
F) Weight of Dry Soil, grams [E - B]				5.51	
G) Weight of Moisture, grams [C - E]				18.25	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				331.2%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/20/2017 7:30	
Date/Time End		4/20/2017 11:30	
I) Tare No.		11	
J) Weight of Tare, grams		51.75	
K) Weight of Oven-Dried Soil + Tare, grams		57.10	
L) Weight of Oven- Dried Soil, grams [K - J]		5.35	
M) Weight of Ignited Soil + Tare, grams		54.44	
N) Ash, grams [M - J]		2.69	
O) Ash Content, % [N *100 / L]		50.2%	
P) Organic Matter, % [100 - O]		49.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 14567-75

Date Reviewed: 4/18/2017

SAMPLE ID: VN67THRU73\_SIEVE\_03072017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	A-2B	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	3/25/2017	15:17
(A) TOTAL AIR-DRIED WEIGHT (g)	365.80	
(B) SPLIT AIR-DRIED WEIGHT (g)	50.46	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	3/26/2017

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	21.58
WEIGHT DRY SOIL & TARE (g)	20.52
Tare #: <u>71</u> WEIGHT TARE (g)	11.17
(C) WEIGHT AIR-DRIED SOIL (g)	10.41
(D) WEIGHT OVEN-DRIED SOIL (g)	9.35
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.8982
CORRECTED SPLIT WEIGHT (B x E)	45.32

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	328.56
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	10.1%
550 °C	11.2%
750 °C	11.2%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.22	99.5%
5.4.58	#40	0.80	98.2%
5.4.145	#60	1.57	96.5%
5.4.162	#200	7.72	83.0%
5.4.181	#230	9.16	79.8%
5.4.189	#270	10.90	75.9%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
12:00	9.2.03	GC-4	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
12:03	2	24.3	34
12:06	5	24.4	28
12:16	15	24.4	23
12:31	30	24.4	21
1:01	60	24.1	18
4:11	250	23.3	15
12:03	1440	21.9	13

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/18/2017  
**Lab ID No.** 14567-75 **Review Date** HS  
**Sample ID:** VN67THRU73\_SIEVE\_03072017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
A-2B	80.91	837.97	446.71	365.8	391.26	107%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/22/2017	14:37
A) Tare No.							63	
B) Tare Weight, grams							15.67	
C) Wet Soil + Tare, grams - see comment							42.90	
D) Dry Soil + Tare, grams (initial)							29.16	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)							ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							13.49	
G) Weight of Moisture, grams [C - E]							13.74	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							101.9%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/27/2017	4:30	ND	ND	ND	ND
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	1		D		D	
J) Weight of Tare, grams	49.10		45.79		45.79	
K) Weight of Oven-Dried Soil + Tare, grams	62.75		62.58		70.15	
L) Weight of Oven- Dried Soil, grams [K - J]	13.65		16.79		24.36	
M) Weight of Ignited Soil + Tare, grams	61.38		60.69		67.42	
N) Ash, grams [M - J]	12.27		14.91		21.63	
O) Ash Content, % [N *100 / L]	89.9%		88.8%		88.8%	
P) Organic Matter, % [100 - O]	10.1%		11.2%		11.2%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11

**DATASHEET FOR THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS**  
 Performed in Accordance with ASTM D 854 - 14 (Method B)

PROJECT NAME: USDC Penobscot Date Tested: 4/12/2017  
 PROJECT NUMBER: 3616166052.04A.4A0225 Tested By: CS  
 ASSIGNMENT NO.: 17/013  
 LAB ID NO.: 14567-75  
 SAMPLE ID: VN67THRU73\_SIEVE\_03072017\_SED\_PRE Date Reviewed: 4/18/2017  
 SAMPLE DESCRIPTION: Gray Organic SILT w/ Sand Reviewed By: HS

(A) Mass of oven-dry soil solids, grams:	49.12
(B) Mass of pycnometer and water at test temperature (T), grams:	1251.00
(C) Mass of pycnometer, water and soil solids at test temperature, grams:	1281.04
(T) Test temperature of pycnometer, water and soil, °C:	25.1
(G) Specific Gravity of solids at test temperature:	2.574
(K) <i>Temperature coefficient:</i>	0.99881
$G_{20^{\circ}\text{C}}$ (G x K) SPECIFIC GRAVITY @ 20°C:	2.571

MATERIAL TESTED (check one):  - # 4  - # 10

PREPARATION METHOD (check one):  DRY  WET (dispersed)

DRY WEIGHT DETERMINATION (AFTER TEST)	
DRY WEIGHT & TARE (g):	<u>440.91</u>
TARE WEIGHT (g):	<u>391.79</u>
TARE NO.:	<u>100</u>

RECOMMENDED DRY MASS OF TEST SPECIMENS WHEN USING 500 mL PYCNOMETER BASED ON SOIL TYPES	SP, SP-SM:	100 ± 10
	SP-SC, SM, SC:	75 ± 10
	SILT OR CLAY:	50 ± 10

**CALCULATIONS:** (G) Specific Gravity of solids at test temperature:  $G = \frac{A}{[B - (C - A)]}$   
 ( $G_{20}$ ) Specific Gravity at 20°C: G x K

REMARKS:

RECORD WEIGHTS TO NEAREST 0.01g RECORD TEMPERATURES TO NEAREST 0.1°C

TESTING EQUIPMENT	
THERMOMETER: <u>8.1.04</u>	SCALES: <u>3.1.141</u>
PYCNOMETER: <u>P-22</u>	OVEN: <u>5.2.02</u>

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 24567-76  
 SAMPLE ID: VN67THRU73\_SIEVE\_03072017\_WCH  
 SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Date Reviewed: 4/14/2017  
 Reviewed By: HS

Pan ID No.	30-A
Air Dry Start Date/Time	3/23/2017 9:00
Air Dry End Date/Time	3/25/2017 15:04
(A) TOTAL AIR-DRIED WEIGHT (g)	107.46
(B) SPLIT AIR-DRIED WEIGHT (g)	50.97
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/25/2017
Sieve Analysis	3/30/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	22.98
WEIGHT DRY SOIL & TARE (g)	22.83
Tare #: <u>33</u> WEIGHT TARE (g)	11.25
(C) WEIGHT AIR-DRIED SOIL (g)	11.73
(D) WEIGHT OVEN-DRIED SOIL (g)	11.58
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9872
CORRECTED SPLIT WEIGHT (B x E)	50.32

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	106.08
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	13.7%
550 °C	28.1%
750 °C	27.7%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	1.13	97.8%
5.4.197	#40	3.99	92.1%
5.4.198	#60	7.61	84.9%
5.4.199	#200	20.50	59.3%
5.4.200	#230	22.63	55.0%
5.4.201	#270	24.48	51.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 24567-76 **Review Date** HS  
**Sample ID:** VN67THRU73\_SIEVE\_03072017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
30-A	45.78	330.74	153.24	107.46	177.5	165%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/23/2017	12:24
A) Tare No.							05	
B) Tare Weight, grams							15.54	
C) Wet Soil + Tare, grams - see comment							41.04	
D) Dry Soil + Tare, grams (initial)							22.95	
Date/Time of initial Weight of Dry Soil Taken (initial)							3/24/2017	7:41
E) Dry Soil + Tare, grams (1 Hr. additional heating)							NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							7.41	
G) Weight of Moisture, grams [C - E]							18.09	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							244.1%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	4/1/2017	4:50	4/1/2017	4:50	4/2/2017	5:00
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	3		H		H	
J) Weight of Tare, grams	51.35		50.34		50.34	
K) Weight of Oven-Dried Soil + Tare, grams	67.38		62.07		66.66	
L) Weight of Oven- Dried Soil, grams [K - J]	16.03		11.73		16.31	
M) Weight of Ignited Soil + Tare, grams	65.18		58.78		62.14	
N) Ash, grams [M - J]	13.82		8.43		11.79	
O) Ash Content, % [N *100 / L]	86.3%		71.9%		72.3%	
P) Organic Matter, % [100 - O]	13.7%		28.1%		27.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11

**DATASHEET FOR THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS**  
 Performed in Accordance with ASTM D 854 - 14 (Method B)

PROJECT NAME: USDC Penobscot Date Tested: 4/8/2017  
 PROJECT NUMBER: 3616166052.04A.4A0225 Tested By: CS  
 ASSIGNMENT NO.: 17/013  
 LAB ID NO.: 24567-76  
 SAMPLE ID: VN67THRU73\_SIEVE\_03072017\_WCH Date Reviewed: 4/14/2017  
 SAMPLE DESCRIPTION: Gray Organic SILT w/ Sand Reviewed By: HS

(A) Mass of oven-dry soil solids, grams:	12.76
(B) Mass of pycnometer and water at test temperature (T), grams:	669.41
(C) Mass of pycnometer, water and soil solids at test temperature, grams:	677.00
(T) Test temperature of pycnometer, water and soil, °C:	22.4
(G) Specific Gravity of solids at test temperature:	2.468
(K) <i>Temperature coefficient:</i>	0.99947
$G_{20^{\circ}\text{C}}$ (G x K) SPECIFIC GRAVITY @ 20°C:	2.467

MATERIAL TESTED (check one):  - # 4  - # 10

PREPARATION METHOD (check one):  DRY  WET (dispersed)

DRY WEIGHT DETERMINATION (AFTER TEST)	
DRY WEIGHT & TARE (g):	<u>263.55</u>
TARE WEIGHT (g):	<u>250.79</u>
TARE NO.:	<u>5</u>

RECOMMENDED DRY MASS OF TEST SPECIMENS WHEN USING 500 mL PYCNOMETER BASED ON SOIL TYPES	SP, SP-SM:	100 ± 10
	SP-SC, SM, SC:	75 ± 10
	SILT OR CLAY:	50 ± 10

**CALCULATIONS:** (G) Specific Gravity of solids at test temperature:  $G = \frac{A}{[B - (C - A)]}$   
 ( $G_{20}$ ) Specific Gravity at 20°C: G x K

REMARKS:

RECORD WEIGHTS TO NEAREST 0.01g RECORD TEMPERATURES TO NEAREST 0.1°C

TESTING EQUIPMENT	
THERMOMETER: <u>8.1.04</u>	SCALES: <u>3.1.141</u>
PYCNOMETER: <u>P-25</u>	OVEN: <u>5.2.02</u>

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 237-77

Date Reviewed: 5/2/2017

SAMPLE ID: FF5152\_SIEVE\_03082017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: ML Gray Sandy SILT w/ Organic Materials

Pan ID No.	6T	
Air Dry Start Date/Time	4/11/2017	9:39
Air Dry End Date/Time	4/14/2017	10:42
(A) TOTAL AIR-DRIED WEIGHT (g)	107.13	
(B) SPLIT AIR-DRIED WEIGHT (g)	51.88	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/16/2017
Sieve Analysis	4/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	24.81
WEIGHT DRY SOIL & TARE (g)	24.72
Tare #: <u>5C</u> WEIGHT TARE (g)	14.32
(C) WEIGHT AIR-DRIED SOIL (g)	10.49
(D) WEIGHT OVEN-DRIED SOIL (g)	10.4
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9914
CORRECTED SPLIT WEIGHT (B x E)	51.43

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	106.21
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	17.2%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.50	99.5%
5.4.196	#20	1.60	96.4%
5.4.197	#40	4.39	91.0%
5.4.198	#60	7.12	85.8%
5.4.199	#200	13.93	72.6%
5.4.200	#230	17.63	65.4%
5.4.201	#270	22.06	56.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 237-77 **Review Date** HS  
**Sample ID:** FF5152\_SIEVE\_03082017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
6T	33.42	305.89	140.78	107.36	165.11	154%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	9:39
A) Tare No.				A-9	
B) Tare Weight, grams				13.69	
C) Wet Soil + Tare, grams - see comment				71.00	
D) Dry Soil + Tare, grams (initial)				35.92	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/12/2017	9:09
E) Dry Soil + Tare, grams (1 Hr. additional heating )				35.89	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/13/2017	9:10
F) Weight of Dry Soil, grams [E - B]				22.23	
G) Weight of Moisture, grams [C - E]				35.08	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				157.8%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/18/2017	ND
Date/Time End		ND	ND
I) Tare No.		23	
J) Weight of Tare, grams		52.70	
K) Weight of Oven-Dried Soil + Tare, grams		73.76	
L) Weight of Oven- Dried Soil, grams [K - J]		21.06	
M) Weight of Ignited Soil + Tare, grams		70.15	
N) Ash, grams [M - J]		17.45	
O) Ash Content, % [N *100 / L]		82.8%	
P) Organic Matter, % [100 - O]		17.2%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 14567-78

Date Reviewed: 4/18/2017

SAMPLE ID: VN67THRU73\_SIEVE\_03082017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	RL-20
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	3/25/2017 13:55
(A) TOTAL AIR-DRIED WEIGHT (g)	251.79
(B) SPLIT AIR-DRIED WEIGHT (g)	50.37
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	3/26/2017

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.99
WEIGHT DRY SOIL & TARE (g)	25.59
Tare #: <u>02</u> WEIGHT TARE (g)	15.48
(C) WEIGHT AIR-DRIED SOIL (g)	10.51
(D) WEIGHT OVEN-DRIED SOIL (g)	10.11
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9619
CORRECTED SPLIT WEIGHT (B x E)	48.45

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	242.2
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	10.5%
550 °C	10.6%
750 °C	10.8%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.10	99.8%
5.4.58	#40	0.46	99.0%
5.4.145	#60	0.78	98.4%
5.4.162	#200	2.97	93.9%
5.4.181	#230	3.92	91.9%
5.4.189	#270	5.39	88.9%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
11:20	9.2.03	GC-17	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
11:23	2	24.3	41
11:26	5	24.3	34
11:36	15	24.6	26
11:51	30	24.6	23
12:21	60	24.6	21
3:31	250	23.4	16
11:23	1440	22.0	13

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/18/2017  
**Lab ID No.** 14567-78 **Review Date** HS  
**Sample ID:** VN67THRU73\_SIEVE\_03082017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
RL-20	59.02	561.35	310.81	251.79	250.54	100%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/22/2017	14:22
A) Tare No.							6	
B) Tare Weight, grams							15.47	
C) Wet Soil + Tare, grams - see comment							44.38	
D) Dry Soil + Tare, grams (initial)							29.91	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)							ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							14.44	
G) Weight of Moisture, grams [C - E]							14.47	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							100.2%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/27/2017	4:33	3/28/2017	3:10	3/28/2017	11:11
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	5		6		6	
J) Weight of Tare, grams	52.72		50.64		50.64	
K) Weight of Oven-Dried Soil + Tare, grams	67.21		66.93		80.16	
L) Weight of Oven- Dried Soil, grams [K - J]	14.50		16.29		29.52	
M) Weight of Ignited Soil + Tare, grams	65.69		65.20		76.96	
N) Ash, grams [M - J]	12.97		14.56		26.32	
O) Ash Content, % [N *100 / L]	89.5%		89.4%		89.2%	
P) Organic Matter, % [100 - O]	10.5%		10.6%		10.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11

**DATASHEET FOR THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS**  
 Performed in Accordance with ASTM D 854 - 14 (Method B)

PROJECT NAME: USDC Penobscot  
 PROJECT NUMBER: 3616166052.04A.4A0225  
 ASSIGNMENT NO.: 17/013  
 LAB ID NO.: 14567-78  
 SAMPLE ID: VN67THRU73\_SIEVE\_03082017\_SED  
 SAMPLE DESCRIPTION: Gray Organic SILT w/ Sand

Date Tested: 4/7/2017  
 Tested By: CS  
 Date Reviewed: 4/18/2017  
 Reviewed By: HS

(A) Mass of oven-dry soil solids, grams:	45.22
(B) Mass of pycnometer and water at test temperature (T), grams:	1251.20
(C) Mass of pycnometer, water and soil solids at test temperature, grams:	1278.81
(T) Test temperature of pycnometer, water and soil, °C:	24.2
(G) Specific Gravity of solids at test temperature:	2.568
(K) <i>Temperature coefficient:</i>	0.99904
$G_{20^{\circ}\text{C}}$ (G x K) <b>SPECIFIC GRAVITY @ 20°C:</b>	<b>2.566</b>

MATERIAL TESTED (check one):  - # 4  - # 10

PREPARATION METHOD (check one):  DRY  WET (dispersed)

DRY WEIGHT DETERMINATION (AFTER TEST)	
DRY WEIGHT & TARE (g):	<u>510.92</u>
TARE WEIGHT (g):	<u>465.70</u>
TARE NO.:	<u>93</u>

RECOMMENDED DRY MASS OF TEST SPECIMENS WHEN USING 500 mL PYCNOMETER BASED ON SOIL TYPES	SP, SP-SM:	100 ± 10
	SP-SC, SM, SC:	75 ± 10
	SILT OR CLAY:	50 ± 10

**CALCULATIONS:** (G) Specific Gravity of solids at test temperature:  $G = \frac{A}{[B - (C-A)]}$   
 (G<sub>20</sub>) Specific Gravity at 20°C: G x K

REMARKS:

RECORD WEIGHTS TO NEAREST 0.01g RECORD TEMPERATURES TO NEAREST 0.1°C

TESTING EQUIPMENT	
THERMOMETER: <u>8.1.04</u>	SCALES: <u>3.1.141</u>
PYCNOMETER: <u>P-22</u>	OVEN: <u>5.2.02</u>

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 14567-79

Date Reviewed: 4/18/2017

SAMPLE ID: VE58THRU60\_SIEVE\_03082017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	103	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	3/25/2017	14:27
(A) TOTAL AIR-DRIED WEIGHT (g)	285.38	
(B) SPLIT AIR-DRIED WEIGHT (g)	51.51	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/25/2017
Sieve Analysis	3/30/2017
Hydrometer	3/26/2017

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	25.71	
WEIGHT DRY SOIL & TARE (g)	25.45	
Tare #:	<u>26</u>	WEIGHT TARE (g)
		15.44
(C) WEIGHT AIR-DRIED SOIL (g)	10.27	
(D) WEIGHT OVEN-DRIED SOIL (g)	10.01	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9747	
CORRECTED SPLIT WEIGHT (B x E)	50.21	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	278.16
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	3.9%
550 °C	11.6%
750 °C	11.7%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.73	98.5%
5.4.58	#40	2.33	95.4%
5.4.145	#60	5.31	89.4%
5.4.162	#200	15.04	70.0%
5.4.181	#230	17.09	66.0%
5.4.189	#270	19.05	62.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
10:36	9.2.03	GC-11	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
10:39	2	23.8	34
10:42	5	23.8	31
10:52	15	23.8	24
11:07	30	23.8	22
11:37	60	23.9	20
2:47	250	23.2	16.5
10:36	1440	21.7	13

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/18/2017  
**Lab ID No.** 14567-79 **Review Date** HS  
**Sample ID:** VE58THRU60\_SIEVE\_03082017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
103	59.05	656.62	344.43	285.38	312.19	109%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/23/2017	12:28
A) Tare No.							55	
B) Tare Weight, grams							15.51	
C) Wet Soil + Tare, grams - see comment							42.13	
D) Dry Soil + Tare, grams (initial)							26.46	
Date/Time of initial Weight of Dry Soil Taken (initial)							3/24/2017	6:20
E) Dry Soil + Tare, grams (1 Hr. additional heating)							ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							10.95	
G) Weight of Moisture, grams [C - E]							15.67	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							143.1%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/27/2017	4:45	3/28/2017	3:00	3/28/2017	11:15
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	10		3		3	
J) Weight of Tare, grams	50.83		51.34		51.34	
K) Weight of Oven-Dried Soil + Tare, grams	61.85		73.90		75.95	
L) Weight of Oven- Dried Soil, grams [K - J]	11.02		22.56		24.61	
M) Weight of Ignited Soil + Tare, grams	61.42		71.27		73.06	
N) Ash, grams [M - J]	10.59		19.94		21.72	
O) Ash Content, % [N *100 / L]	96.1%		88.4%		88.3%	
P) Organic Matter, % [100 - O]	3.9%		11.6%		11.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 13-80

Date Reviewed: 4/14/2017

SAMPLE ID: VN74THRU80\_SIEVE\_03082017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Organic SILT w/ Sand

Pan ID No.	A-3	
Air Dry Start Date/Time	3/22/2017	14:45
Air Dry End Date/Time	3/26/2017	12:53
(A) TOTAL AIR-DRIED WEIGHT (g)	380.49	
(B) SPLIT AIR-DRIED WEIGHT (g)	51.99	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/25/2017
Sieve Analysis	3/30/2017
Hydrometer	3/26/2017

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		24.19	
WEIGHT DRY SOIL & TARE (g)		23.98	
Tare #:	<u>A-17</u>	WEIGHT TARE (g)	13.41
(C) WEIGHT AIR-DRIED SOIL (g)		10.78	
(D) WEIGHT OVEN-DRIED SOIL (g)		10.57	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9805	
CORRECTED SPLIT WEIGHT (B x E)		50.98	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	373.07
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	8.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.05	99.9%
5.4.197	#40	0.33	99.4%
5.4.198	#60	0.66	98.7%
5.4.199	#200	2.17	95.7%
5.4.200	#230	2.63	94.8%
5.4.201	#270	3.47	93.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
12:07	9.2.03	GC-17	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
12:10	2	25.2	40
12:13	5	25.2	34
12:23	15	25.2	26
12:38	30	25.2	22
1:08	60	24.5	20
4:18	250	23.4	17
12:10	1440	21.9	13

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 13-80 **Review Date** HS  
**Sample ID:** VN74THRU80\_SIEVE\_03082017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
A-3	70.69	860.98	451.18	380.49	409.8	108%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/22/2017	14:45
A) Tare No.				88	
B) Tare Weight, grams				15.41	
C) Wet Soil + Tare, grams - see comment				50.42	
D) Dry Soil + Tare, grams (initial)				31.17	
Date/Time of initial Weight of Dry Soil Taken (initial)				ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating )				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				ND	ND
F) Weight of Dry Soil, grams [E - B]				15.76	
G) Weight of Moisture, grams [C - E]				19.25	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				122.1%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/16/2017 4:05	
Date/Time End		4/16/2017 9:35	
I) Tare No.		20	
J) Weight of Tare, grams		51.29	
K) Weight of Oven-Dried Soil + Tare, grams		66.74	
L) Weight of Oven- Dried Soil, grams [K - J]		15.45	
M) Weight of Ignited Soil + Tare, grams		65.40	
N) Ash, grams [M - J]		14.11	
O) Ash Content, % [N *100 / L]		91.3%	
P) Organic Matter, % [100 - O]		8.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-81

Date Reviewed: 5/2/2017

SAMPLE ID: VE505253\_SIEVE\_03082017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	RL-162
Air Dry Start Date/Time	4/11/2017 7:08
Air Dry End Date/Time	4/14/2017 10:31
(A) TOTAL AIR-DRIED WEIGHT (g)	141.08
(B) SPLIT AIR-DRIED WEIGHT (g)	51.30
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	4/16/2017
Sieve Analysis	4/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	24.68
WEIGHT DRY SOIL & TARE (g)	24.53
Tare #: <u>2-C</u> WEIGHT TARE (g)	14.36
(C) WEIGHT AIR-DRIED SOIL (g)	10.32
(D) WEIGHT OVEN-DRIED SOIL (g)	10.17
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9855
CORRECTED SPLIT WEIGHT (B x E)	50.56

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	139.03
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	7.4%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.41	99.2%
5.4.197	#40	1.72	96.6%
5.4.198	#60	5.16	89.8%
5.4.199	#200	14.36	71.6%
5.4.200	#230	16.60	67.2%
5.4.201	#270	19.52	61.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-81 **Review Date** HS  
**Sample ID:** VE505253\_SIEVE\_03082017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
TARE	0	276.84	141.36	141.36	135.48	95.8%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	7:08
A) Tare No.				24C	
B) Tare Weight, grams				14.31	
C) Wet Soil + Tare, grams - see comment				50.33	
D) Dry Soil + Tare, grams (initial)				37.29	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/12/2017	9:00
E) Dry Soil + Tare, grams (1 Hr. additional heating)				37.27	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/12/2017	10:15
F) Weight of Dry Soil, grams [E - B]				22.98	
G) Weight of Moisture, grams [C - E]				13.04	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				56.7%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		ND	ND
Date/Time End		ND	ND
I) Tare No.		21	
J) Weight of Tare, grams		52.33	
K) Weight of Oven-Dried Soil + Tare, grams		75.14	
L) Weight of Oven- Dried Soil, grams [K - J]		22.80	
M) Weight of Ignited Soil + Tare, grams		73.44	
N) Ash, grams [M - J]		21.11	
O) Ash Content, % [N *100 / L]		92.6%	
P) Organic Matter, % [100 - O]		7.4%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-82

Date Reviewed: 5/2/2017

SAMPLE ID: FF5152\_SIEVE\_03082017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	52
Air Dry Start Date/Time	4/11/2017 7:00
Air Dry End Date/Time	4/19/17 10:13
(A) TOTAL AIR-DRIED WEIGHT (g)	204.99
(B) SPLIT AIR-DRIED WEIGHT (g)	42.81
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	4/19/2017
Sieve Analysis	4/24/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	24.14
WEIGHT DRY SOIL & TARE (g)	23.65
Tare #: <u>22-C</u> WEIGHT TARE (g)	14.44
(C) WEIGHT AIR-DRIED SOIL (g)	9.7
(D) WEIGHT OVEN-DRIED SOIL (g)	9.21
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9495
CORRECTED SPLIT WEIGHT (B x E)	40.65

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	194.64
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	20.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	1.88	95.4%
5.4.197	#40	7.27	82.1%
5.4.198	#60	11.49	71.7%
5.4.199	#200	17.55	56.8%
5.4.200	#230	22.39	44.9%
5.4.201	#270	22.95	43.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-82 **Review Date** HS  
**Sample ID:** FF5152\_SIEVE\_03082017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
52	35.3	621.55	240.29	204.99	381.26	186%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	7:00
A) Tare No.				1-C	
B) Tare Weight, grams				13.47	
C) Wet Soil + Tare, grams - see comment				92.29	
D) Dry Soil + Tare, grams (initial)				38.50	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/20/2017	6:00
E) Dry Soil + Tare, grams (1 Hr. additional heating)				38.50	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/20/2017	7:00
F) Weight of Dry Soil, grams [E - B]				25.03	
G) Weight of Moisture, grams [C - E]				53.79	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				214.9%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/20/2017	ND
Date/Time End		ND	ND
I) Tare No.		2	
J) Weight of Tare, grams		51.81	
K) Weight of Oven-Dried Soil + Tare, grams		75.69	
L) Weight of Oven- Dried Soil, grams [K - J]		23.87	
M) Weight of Ignited Soil + Tare, grams		70.80	
N) Ash, grams [M - J]		18.99	
O) Ash Content, % [N *100 / L]		79.5%	
P) Organic Matter, % [100 - O]		20.5%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-83

Date Reviewed: 4/14/2017

SAMPLE ID: MM50THRU56\_SIEVE\_03092017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	LAW-27	
Air Dry Start Date/Time	ND	ND
Air Dry End Date/Time	3/26/2017	15:00
(A) TOTAL AIR-DRIED WEIGHT (g)	94.80	
(B) SPLIT AIR-DRIED WEIGHT (g)	50.28	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	23.18	
WEIGHT DRY SOIL & TARE (g)	22.89	
Tare #:	<u>A-25</u>	WEIGHT TARE (g)
		13.1
(C) WEIGHT AIR-DRIED SOIL (g)	10.08	
(D) WEIGHT OVEN-DRIED SOIL (g)	9.79	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9712	
CORRECTED SPLIT WEIGHT (B x E)	48.83	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	92.07
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	9.3%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.51	99.0%
5.4.197	#40	1.83	96.3%
5.4.198	#60	2.85	94.2%
5.4.199	#200	5.53	88.7%
5.4.200	#230	6.55	86.6%
5.4.201	#270	8.13	83.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-83 **Review Date** HS  
**Sample ID:** MM50THRU56\_SIEVE\_03092017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
LAW-27	23.16	215.19	117.96	94.8	97.23	102.6%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/23/2017	13:18
A) Tare No.							NRB-1	
B) Tare Weight, grams							34.35	
C) Wet Soil + Tare, grams - see comment							65.48	
D) Dry Soil + Tare, grams (initial)							49.51	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)							ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							15.16	
G) Weight of Moisture, grams [C - E]							15.97	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							105.3%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/16/2017	4:10		
Date/Time End			4/16/2017	9:45		
I) Tare No.			18			
J) Weight of Tare, grams			53.89			
K) Weight of Oven-Dried Soil + Tare, grams			68.78			
L) Weight of Oven- Dried Soil, grams [K - J]			14.90			
M) Weight of Ignited Soil + Tare, grams			67.40			
N) Ash, grams [M - J]			13.51			
O) Ash Content, % [N *100 / L]			90.7%			
P) Organic Matter, % [100 - O]			9.3%			

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 3-84  
 SAMPLE ID: OR\_TRAP1+2\_SIEVE\_03092017\_WCH  
 SAMPLE DESCRIPTION: SM Brown Silty SAND w/ Organic Material

Date Reviewed: 5/2/2017  
 Reviewed By: HS

Pan ID No.	NP
Air Dry Start Date/Time	NP NP
Air Dry End Date/Time	NP NP
(A) TOTAL AIR-DRIED WEIGHT (g)	NP
(B) SPLIT AIR-DRIED WEIGHT (g)	NP
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	NP
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	5.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
	3/4"	NP	NP
	3/8"	NP	NP
	#4	NP	NP
	(G) #10	NP	NP
	#20	NP	NP
	#40	NP	NP
	#60	NP	NP
	#200	NP	NP
	#230	NP	NP
	#270	NP	NP
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 3-84 **Review Date** HS  
**Sample ID:** OR\_TRAP1+2\_SIEVE\_03092017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
NP	NP	NP	NP	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/20/2017	9:55
A) Tare No.				5	
B) Tare Weight, grams				24.49	
C) Wet Soil + Tare, grams - see comment				33.62	
D) Dry Soil + Tare, grams (initial)				30.11	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/24/2017	6:05
E) Dry Soil + Tare, grams (1 Hr. additional heating)				30.09	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/24/2017	7:09
F) Weight of Dry Soil, grams [E - B]				5.62	
G) Weight of Moisture, grams [C - E]				3.51	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				62.5%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/24/2017 7:30	
Date/Time End		4/24/2017 12:00	
I) Tare No.		12	
J) Weight of Tare, grams		52.41	
K) Weight of Oven-Dried Soil + Tare, grams		57.98	
L) Weight of Oven- Dried Soil, grams [K - J]		5.57	
M) Weight of Ignited Soil + Tare, grams		57.67	
N) Ash, grams [M - J]		5.26	
O) Ash Content, % [N *100 / L]		94.5%	
P) Organic Matter, % [100 - O]		5.5%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 23-85  
 SAMPLE ID: OR\_TRAP1+2\_SIEVE\_03092017\_SED\_PRE  
 SAMPLE DESCRIPTION: SM Brown Silty SAND

Date Reviewed: 5/2/2017  
 Reviewed By: HS

Pan ID No.	30-A	
Air Dry Start Date/Time	4/11/2017	7:14
Air Dry End Date/Time	4/14/2017	11:03
(A) TOTAL AIR-DRIED WEIGHT (g)	90.30	
(B) SPLIT AIR-DRIED WEIGHT (g)	50.38	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/19/2017
Sieve Analysis	4/24/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)		24.93
WEIGHT DRY SOIL & TARE (g)		24.79
Tare #:	<u>4-C</u>	WEIGHT TARE (g)
		14.29
(C) WEIGHT AIR-DRIED SOIL (g)		10.64
(D) WEIGHT OVEN-DRIED SOIL (g)		10.5
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9868
CORRECTED SPLIT WEIGHT (B x E)		49.71

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	89.19
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	7.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.14	99.8%
5.4.195	(G) #10	6.08	93.2%
5.4.196	#20	3.42	86.8%
5.4.197	#40	9.35	75.7%
5.4.198	#60	17.98	59.5%
5.4.199	#200	30.47	36.1%
5.4.200	#230	31.36	34.4%
5.4.201	#270	32.34	32.6%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-85 **Review Date** HS  
**Sample ID:** OR\_TRAP1+2\_SIEVE\_03092017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
30-A	22.78	178.61	113.26	90.48	65.35	72%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	7:14
A) Tare No.				92A	
B) Tare Weight, grams				12.84	
C) Wet Soil + Tare, grams - see comment				37.38	
D) Dry Soil + Tare, grams (initial)				27.13	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/17/2017	8:20
E) Dry Soil + Tare, grams (1 Hr. additional heating )				27.10	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/18/2017	8:20
F) Weight of Dry Soil, grams [E - B]				14.29	
G) Weight of Moisture, grams [C - E]				10.25	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				71.7%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/18/2017	ND
Date/Time End		ND	ND
I) Tare No.		8	
J) Weight of Tare, grams		50.66	
K) Weight of Oven-Dried Soil + Tare, grams		64.53	
L) Weight of Oven- Dried Soil, grams [K - J]		13.86	
M) Weight of Ignited Soil + Tare, grams		63.48	
N) Ash, grams [M - J]		12.82	
O) Ash Content, % [N *100 / L]		92.5%	
P) Organic Matter, % [100 - O]		7.5%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-86

Date Reviewed: 4/14/2017

SAMPLE ID: FF5152\_SIEVE\_03092017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	27-A	
Air Dry Start Date/Time	3/23/2017	9:00
Air Dry End Date/Time	3/26/2017	13:10
(A) TOTAL AIR-DRIED WEIGHT (g)	273.43	
(B) SPLIT AIR-DRIED WEIGHT (g)	50.48	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/1/2017
Sieve Analysis	4/6/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		24.84	
WEIGHT DRY SOIL & TARE (g)		24.4	
Tare #:	<u>A-25</u>	WEIGHT TARE (g)	13.49
(C) WEIGHT AIR-DRIED SOIL (g)		11.35	
(D) WEIGHT OVEN-DRIED SOIL (g)		10.91	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9612	
CORRECTED SPLIT WEIGHT (B x E)		48.52	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	262.82
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	10.0%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	1.14	97.7%
5.4.197	#40	3.64	92.5%
5.4.198	#60	5.74	88.2%
5.4.199	#200	10.90	77.5%
5.4.200	#230	13.53	72.1%
5.4.201	#270	17.34	64.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-86 **Review Date** HS  
**Sample ID:** FF5152\_SIEVE\_03092017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
27-A	58.91	619.48	332.34	273.43	287.14	105.0%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/23/2017	12:50
A) Tare No.				97	
B) Tare Weight, grams				15.61	
C) Wet Soil + Tare, grams - see comment				40.79	
D) Dry Soil + Tare, grams (initial)				27.78	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/24/2017	12:17
E) Dry Soil + Tare, grams (1 Hr. additional heating)				ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				12.17	
G) Weight of Moisture, grams [C - E]				13.01	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				106.9%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/16/2017 4:25	
Date/Time End		4/16/2017 9:55	
I) Tare No.		3	
J) Weight of Tare, grams		51.37	
K) Weight of Oven-Dried Soil + Tare, grams		62.94	
L) Weight of Oven- Dried Soil, grams [K - J]		11.58	
M) Weight of Ignited Soil + Tare, grams		61.79	
N) Ash, grams [M - J]		10.42	
O) Ash Content, % [N *100 / L]		90.0%	
P) Organic Matter, % [100 - O]		10.0%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



**DATASHEET FOR THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS**  
Performed in Accordance with ASTM D 854 - 14 (Method B)

PROJECT NAME: USDC Penobscot  
PROJECT NUMBER: 3616166052.04A.4A0225  
ASSIGNMENT NO.: 17/013  
LAB ID NO.: 23-86  
SAMPLE ID: FF5152\_SIEVE\_03092017\_SED  
SAMPLE DESCRIPTION: Gray Organic SILT w/ Sand

Date Tested: 4/6/2017  
Tested By: CS  
Date Reviewed: 4/14/2017  
Reviewed By: HS

(A) Mass of oven-dry soil solids, grams:	15.89
(B) Mass of pycnometer and water at test temperature (T), grams:	675.30
(C) Mass of pycnometer, water and soil solids at test temperature, grams:	684.86
(T) Test temperature of pycnometer, water and soil, °C:	23.6
(G) Specific Gravity of solids at test temperature:	2.510
(K) <i>Temperature coefficient:</i>	0.99919
$G_{20^{\circ}\text{C}}$ (G x K) SPECIFIC GRAVITY @ 20°C:	2.508

MATERIAL TESTED (check one):  - # 4       - # 10

PREPARATION METHOD (check one):  DRY       WET (dispersed)

DRY WEIGHT DETERMINATION (AFTER TEST)	
DRY WEIGHT & TARE (g):	<u>481.67</u>
TARE WEIGHT (g):	<u>465.78</u>
TARE NO.:	<u>93</u>

RECOMMENDED DRY MASS OF TEST SPECIMENS WHEN USING 500 mL PYCNOMETER BASED ON SOIL TYPES	SP, SP-SM:	100 ± 10
	SP-SC, SM, SC:	75 ± 10
	SILT OR CLAY:	50 ± 10

**CALCULATIONS:** (G) Specific Gravity of solids at test temperature:  $G = \frac{A}{[B - (C-A)]}$   
(G<sub>20</sub>) Specific Gravity at 20°C: G x K

REMARKS:

RECORD WEIGHTS TO NEAREST 0.01g    RECORD TEMPERATURES TO NEAREST 0.1°C

TESTING EQUIPMENT			
THERMOMETER:	<u>8.1.04</u>	SCALES:	<u>3.1.141</u>
PYCNOMETER:	<u>P-20</u>	OVEN:	<u>5.2.02</u>

TECHNICIAN: CS  
CALCULATIONS: CS  
CHECKED BY: HS



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-87

Date Reviewed: 5/2/2017

SAMPLE ID: MM50THRU56\_SIEVE\_03092017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: MH Gray Sandy SILT w/ Organic Materials

Pan ID No.	A-8	
Air Dry Start Date/Time	4/11/2017	7:50
Air Dry End Date/Time	4/17/2017	6:50
(A) TOTAL AIR-DRIED WEIGHT (g)	15.04	
(B) SPLIT AIR-DRIED WEIGHT (g)	14.81	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	4/24/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	15.4%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.62	95.8%
5.4.197	#40	1.56	89.5%
5.4.198	#60	2.46	83.4%
5.4.199	#200	5.17	65.1%
5.4.200	#230	5.84	60.6%
5.4.201	#270	6.63	55.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-87 **Review Date** HS  
**Sample ID:** MM50THRU56\_SIEVE\_03092017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
A-8	22.96	60.08	38	15.04	22.08	147%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	7:56
A) Tare No.				12	
B) Tare Weight, grams				11.19	
C) Wet Soil + Tare, grams - see comment				29.18	
D) Dry Soil + Tare, grams (initial)				18.78	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/20/2017	6:05
E) Dry Soil + Tare, grams (1 Hr. additional heating)				18.76	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/20/2017	7:09
F) Weight of Dry Soil, grams [E - B]				7.59	
G) Weight of Moisture, grams [C - E]				10.40	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				137.0%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/20/2017	ND
Date/Time End		ND	ND
I) Tare No.		25	
J) Weight of Tare, grams		52.24	
K) Weight of Oven-Dried Soil + Tare, grams		59.77	
L) Weight of Oven- Dried Soil, grams [K - J]		7.53	
M) Weight of Ignited Soil + Tare, grams		58.61	
N) Ash, grams [M - J]		6.37	
O) Ash Content, % [N *100 / L]		84.6%	
P) Organic Matter, % [100 - O]		15.4%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 2456-88

Date Reviewed: 5/2/2017

SAMPLE ID: MM68THRU71\_SIEVE\_03092017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT

Pan ID No.	NP
Air Dry Start Date/Time	NP NP
Air Dry End Date/Time	NP NP
(A) TOTAL AIR-DRIED WEIGHT (g)	NP
(B) SPLIT AIR-DRIED WEIGHT (g)	NP
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	NP
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	28.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
	3/4"	NP	NP
	3/8"	NP	NP
	#4	NP	NP
	(G) #10	NP	NP
	#20	NP	NP
	#40	NP	NP
	#60	NP	NP
	#200	NP	NP
	#230	NP	NP
	#270	NP	NP
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 2456-88 **Review Date** HS  
**Sample ID:** MM68THRU71\_SIEVE\_03092017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
NP	NP	NP	NP	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				NP	NP
A) Tare No.				NP	
B) Tare Weight, grams				NP	
C) Wet Soil + Tare, grams - see comment				NP	
D) Dry Soil + Tare, grams (initial)				NP	
Date/Time of initial Weight of Dry Soil Taken (initial)				NP	NP
E) Dry Soil + Tare, grams (1 Hr. additional heating)				NP	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				NP	NP
F) Weight of Dry Soil, grams [E - B]				0.00	
G) Weight of Moisture, grams [C - E]				0.00	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				#DIV/0!	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		5/1/2017 6:00	
Date/Time End		5/1/2017 10:50	
I) Tare No.		23	
J) Weight of Tare, grams		52.69	
K) Weight of Oven-Dried Soil + Tare, grams		58.89	
L) Weight of Oven- Dried Soil, grams [K - J]		6.20	
M) Weight of Ignited Soil + Tare, grams		57.11	
N) Ash, grams [M - J]		4.42	
O) Ash Content, % [N *100 / L]		71.3%	
P) Organic Matter, % [100 - O]		28.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, only Organic Content at TBD (550° C) testing was performed as requested.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-89

Date Reviewed: 5/2/2017

SAMPLE ID: MM64THRU67\_SIEVE\_03092017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: CL Light Gray Sandy CLAY w/ Organic Material

Pan ID No.	12T	
Air Dry Start Date/Time	4/11/2017	8:02
Air Dry End Date/Time	4/14/2017	10:05
(A) TOTAL AIR-DRIED WEIGHT (g)	72.31	
(B) SPLIT AIR-DRIED WEIGHT (g)	34.09	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/16/2017
Sieve Analysis	4/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	22.36	
WEIGHT DRY SOIL & TARE (g)	22.16	
Tare #:	<u>14</u>	WEIGHT TARE (g)
		11.12
(C) WEIGHT AIR-DRIED SOIL (g)	11.24	
(D) WEIGHT OVEN-DRIED SOIL (g)	11.04	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9822	
CORRECTED SPLIT WEIGHT (B x E)	33.48	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	71.02
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	10.9%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.60	98.2%
5.4.197	#40	1.85	94.5%
5.4.198	#60	2.76	91.8%
5.4.199	#200	4.97	85.2%
5.4.200	#230	5.61	83.2%
5.4.201	#270	6.53	80.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-89 **Review Date** HS  
**Sample ID:** MM64THRU67\_SIEVE\_03092017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
12T	22.15	174.92	94.48	72.33	80.44	111%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	8:02
A) Tare No.				A-29	
B) Tare Weight, grams				13.40	
C) Wet Soil + Tare, grams - see comment				68.48	
D) Dry Soil + Tare, grams (initial)				39.55	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/15/2017	7:09
E) Dry Soil + Tare, grams (1 Hr. additional heating )				39.51	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/18/2017	9:55
F) Weight of Dry Soil, grams [E - B]				26.15	
G) Weight of Moisture, grams [C - E]				28.93	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				110.6%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/18/2017 10:00	
Date/Time End		ND ND	
I) Tare No.		21	
J) Weight of Tare, grams		52.32	
K) Weight of Oven-Dried Soil + Tare, grams		76.61	
L) Weight of Oven- Dried Soil, grams [K - J]		24.30	
M) Weight of Ignited Soil + Tare, grams		73.96	
N) Ash, grams [M - J]		21.64	
O) Ash Content, % [N *100 / L]		89.1%	
P) Organic Matter, % [100 - O]		10.9%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-90

Date Reviewed: 5/2/2017

SAMPLE ID: MM64THRU67\_SIEVE\_03092017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: OL Black Organic SILT w/ Sand

Pan ID No.	NP
Air Dry Start Date/Time	NP NP
Air Dry End Date/Time	NP NP
(A) TOTAL AIR-DRIED WEIGHT (g)	NP
(B) SPLIT AIR-DRIED WEIGHT (g)	NP
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	NP
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	15.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
	3/4"	NP	NP
	3/8"	NP	NP
	#4	NP	NP
	(G) #10	NP	NP
	#20	NP	NP
	#40	NP	NP
	#60	NP	NP
	#200	NP	NP
	#230	NP	NP
	#270	NP	NP
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-90 **Review Date** HS  
**Sample ID:** MM64THRU67\_SIEVE\_03092017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
NP	NP	NP	NP	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/20/2017	10:02
A) Tare No.				NRB-1	
B) Tare Weight, grams				34.27	
C) Wet Soil + Tare, grams - see comment				68.44	
D) Dry Soil + Tare, grams (initial)				46.60	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/24/2017	6:00
E) Dry Soil + Tare, grams (1 Hr. additional heating)				46.58	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/24/2017	7:10
F) Weight of Dry Soil, grams [E - B]				12.33	
G) Weight of Moisture, grams [C - E]				21.84	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				177.1%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/24/2017 7:30	
Date/Time End		4/24/2017 12:00	
I) Tare No.		3	
J) Weight of Tare, grams		51.38	
K) Weight of Oven-Dried Soil + Tare, grams		63.41	
L) Weight of Oven- Dried Soil, grams [K - J]		12.03	
M) Weight of Ignited Soil + Tare, grams		61.52	
N) Ash, grams [M - J]		10.14	
O) Ash Content, % [N *100 / L]		84.3%	
P) Organic Matter, % [100 - O]		15.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, only Organic Content at TBD (550° C) and Moisture Content (ASTM D2216) testing was performed.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 1456-91

Date Reviewed: 4/14/2017

SAMPLE ID: MM68THRU71\_SIEVE\_03102017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	106-F
Air Dry Start Date/Time	2/4/1900 22:04
Air Dry End Date/Time	3/25/2017 14:49
(A) TOTAL AIR-DRIED WEIGHT (g)	193.69
(B) SPLIT AIR-DRIED WEIGHT (g)	50.40
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/25/2017
Sieve Analysis	3/30/2017
Hydrometer	3/25/2017

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	21.88
WEIGHT DRY SOIL & TARE (g)	21.62
Tare #: <u>93</u> WEIGHT TARE (g)	11.15
(C) WEIGHT AIR-DRIED SOIL (g)	10.73
(D) WEIGHT OVEN-DRIED SOIL (g)	10.47
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9758
CORRECTED SPLIT WEIGHT (B x E)	49.18

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	189.00
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	8.4%
550 °C	8.1%
750 °C	8.4%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.02	100.0%
5.4.58	#40	0.09	99.8%
5.4.145	#60	0.31	99.4%
5.4.162	#200	1.06	97.8%
5.4.181	#230	1.22	97.5%
5.4.189	#270	1.42	97.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
10:40	9.2.03	GC-5	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
10:43	2	23.8	54
10:46	5	23.8	48
10:56	15	23.8	41
11:11	30	23.8	37
11:41	60	23.8	34
2:51	250	23.2	27
10:40	1440	21.7	21

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 1456-91 **Review Date** HS  
**Sample ID:** MM68THRU71\_SIEVE\_03102017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
106-F	35	404.92	228.69	193.69	176.23	91%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/23/2017	12:37
A) Tare No.							123-A	
B) Tare Weight, grams							19.73	
C) Wet Soil + Tare, grams - see comment							53.54	
D) Dry Soil + Tare, grams (initial)							36.57	
Date/Time of initial Weight of Dry Soil Taken (initial)							3/24/2017	6:00
E) Dry Soil + Tare, grams (1 Hr. additional heating)							ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							16.84	
G) Weight of Moisture, grams [C - E]							16.97	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							100.8%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/27/2017	4:40	3/28/2017	3:35	3/28/2017	9:00
Date/Time End	3/27/2017	8:50	3/28/2017	8:10	ND	ND
I) Tare No.	6		10		10	
J) Weight of Tare, grams	50.63		50.84		50.84	
K) Weight of Oven-Dried Soil + Tare, grams	67.58		66.28		83.28	
L) Weight of Oven- Dried Soil, grams [K - J]	16.95		15.44		32.44	
M) Weight of Ignited Soil + Tare, grams	66.16		65.03		80.57	
N) Ash, grams [M - J]	15.53		14.19		29.73	
O) Ash Content, % [N *100 / L]	91.6%		91.9%		91.6%	
P) Organic Matter, % [100 - O]	8.4%		8.1%		8.4%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 14567-92

Date Reviewed: 4/18/2017

SAMPLE ID: ON1\_SIEVE\_03102017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	RL-162
Air Dry Start Date/Time	3/23/2017 7:30
Air Dry End Date/Time	3/26/2017 12:39
(A) TOTAL AIR-DRIED WEIGHT (g)	95.72
(B) SPLIT AIR-DRIED WEIGHT (g)	51.42
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	3/26/2017

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	21.51
WEIGHT DRY SOIL & TARE (g)	21.31
Tare #: <u>51</u> WEIGHT TARE (g)	11.46
(C) WEIGHT AIR-DRIED SOIL (g)	10.05
(D) WEIGHT OVEN-DRIED SOIL (g)	9.85
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9801
CORRECTED SPLIT WEIGHT (B x E)	50.40

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	93.82
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	20.7%
550 °C	19.3%
750 °C	19.6%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.12	99.8%
5.4.58	#40	0.53	98.9%
5.4.145	#60	1.11	97.8%
5.4.162	#200	3.67	92.7%
5.4.181	#230	4.15	91.8%
5.4.189	#270	4.90	90.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
11:09	9.2.03	GC-3	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
11:12	2	25.1	42
11:15	5	25.1	34
11:25	15	25.1	29
11:40	30	25.0	26
12:10	60	24.7	24
3:20	250	23.4	20
11:12	1440	22.0	16

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/18/2017  
**Lab ID No.** 14567-92 **Review Date** HS  
**Sample ID:** ON1\_SIEVE\_03102017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
RL-162	57.35	464.85	153.07	95.72	311.78	326%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/22/2017	14:10
A) Tare No.							56	
B) Tare Weight, grams							15.53	
C) Wet Soil + Tare, grams - see comment							48.71	
D) Dry Soil + Tare, grams (initial)							24.62	
Date/Time of initial Weight of Dry Soil Taken (initial)							ND	ND
E) Dry Soil + Tare, grams (1 Hr. additional heating)							ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							9.09	
G) Weight of Moisture, grams [C - E]							24.09	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							265.0%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/27/2017	4:35	3/28/2017	3:15	ND	ND
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	2		5		5	
J) Weight of Tare, grams	51.78		52.72		52.72	
K) Weight of Oven-Dried Soil + Tare, grams	62.87		63.90		71.25	
L) Weight of Oven- Dried Soil, grams [K - J]	11.09		11.18		18.53	
M) Weight of Ignited Soil + Tare, grams	60.57		61.74		67.62	
N) Ash, grams [M - J]	8.79		9.02		14.90	
O) Ash Content, % [N *100 / L]	79.3%		80.7%		80.4%	
P) Organic Matter, % [100 - O]	20.7%		19.3%		19.6%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 237-93

Date Reviewed: 4/18/2017

SAMPLE ID: ON1\_SIEVE\_03102017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: OL Dark Gray Organic SILT w/ Sand

Pan ID No.	33-A	
Air Dry Start Date/Time	3/23/2017	8:00
Air Dry End Date/Time	3/26/2017	13:19
(A) TOTAL AIR-DRIED WEIGHT (g)	97.52	
(B) SPLIT AIR-DRIED WEIGHT (g)	26.43	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/26/2017
Sieve Analysis	3/30/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		23.47	
WEIGHT DRY SOIL & TARE (g)		22.57	
Tare #:	<u>A-3</u>	WEIGHT TARE (g)	13.12
(C) WEIGHT AIR-DRIED SOIL (g)		10.35	
(D) WEIGHT OVEN-DRIED SOIL (g)		9.45	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.913	
CORRECTED SPLIT WEIGHT (B x E)		24.13	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	89.04
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	45.0%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.49	98.0%
5.4.197	#40	1.86	92.3%
5.4.198	#60	4.44	81.6%
5.4.199	#200	10.29	57.4%
5.4.200	#230	10.89	54.9%
5.4.201	#270	11.62	51.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/18/2017  
**Lab ID No.** 237-93 **Review Date** HS  
**Sample ID:** ON1\_SIEVE\_03102017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
33-A	57.41	527.57	154.93	97.52	372.64	382%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/23/2017	12:45
A) Tare No.				78	
B) Tare Weight, grams				11.21	
C) Wet Soil + Tare, grams - see comment				31.14	
D) Dry Soil + Tare, grams (initial)				14.30	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/24/2017	5:55
E) Dry Soil + Tare, grams (1 Hr. additional heating)				14.29	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				3.09	
G) Weight of Moisture, grams [C - E]				16.84	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				545.0%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/24/2017 7:30	
Date/Time End		ND ND	
I) Tare No.		17	
J) Weight of Tare, grams		53.11	
K) Weight of Oven-Dried Soil + Tare, grams		56.34	
L) Weight of Oven- Dried Soil, grams [K - J]		3.23	
M) Weight of Ignited Soil + Tare, grams		54.89	
N) Ash, grams [M - J]		1.78	
O) Ash Content, % [N *100 / L]		55.0%	
P) Organic Matter, % [100 - O]		45.0%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



**DATASHEET FOR THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS**  
 Performed in Accordance with ASTM D 854 - 14 (Method B)

PROJECT NAME: USDC Penobscot  
 PROJECT NUMBER: 3616166052.04A.4A0225  
 ASSIGNMENT NO.: 17/013  
 LAB ID NO.: 237-93  
 SAMPLE ID: ON1\_SIEVE\_03102017\_WCH  
 SAMPLE DESCRIPTION: Dark Gray Organic SILT w/ Sand

Date Tested: 4/11/2017  
 Tested By: CS  
 Date Reviewed: 4/18/2017  
 Reviewed By: HS

(A) Mass of oven-dry soil solids, grams:	20.03
(B) Mass of pycnometer and water at test temperature (T), grams:	669.12
(C) Mass of pycnometer, water and soil solids at test temperature, grams:	679.65
(T) Test temperature of pycnometer, water and soil, °C:	24.80
(G) Specific Gravity of solids at test temperature:	2.108
(K) <i>Temperature coefficient:</i>	0.99889
$G_{20^{\circ}\text{C}}$ (G x K) SPECIFIC GRAVITY @ 20°C:	2.106

MATERIAL TESTED (check one):  - # 4       - # 10

PREPARATION METHOD (check one):  DRY       WET (dispersed)

DRY WEIGHT DETERMINATION (AFTER TEST)	
DRY WEIGHT & TARE (g):	<u>280.20</u>
TARE WEIGHT (g):	<u>260.17</u>
TARE NO.:	<u>1</u>

RECOMMENDED DRY MASS OF TEST SPECIMENS WHEN USING 500 mL PYCNOMETER BASED ON SOIL TYPES	SP, SP-SM:	100 ± 10
	SP-SC, SM, SC:	75 ± 10
	SILT OR CLAY:	50 ± 10

**CALCULATIONS:** (G) Specific Gravity of solids at test temperature:  $G = \frac{A}{[B - (C-A)]}$   
 (G<sub>20</sub>) Specific Gravity at 20°C: G x K

REMARKS:

RECORD WEIGHTS TO NEAREST 0.01g    RECORD TEMPERATURES TO NEAREST 0.1°C

TESTING EQUIPMENT			
THERMOMETER:	<u>8.1.04</u>	SCALES:	<u>3.1.141</u>
PYCNOMETER:	<u>P-25</u>	OVEN:	<u>5.2.02</u>

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-94

Date Reviewed: 5/2/2017

SAMPLE ID: MM64THRU67\_SIEVE\_03102017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Gray Sandy CLAY w/ Organic Material

Pan ID No.	#1
Air Dry Start Date/Time	4/11/2017 7:43
Air Dry End Date/Time	4/14/2017 9:30
(A) TOTAL AIR-DRIED WEIGHT (g)	231.29
(B) SPLIT AIR-DRIED WEIGHT (g)	47.53
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.63
WEIGHT DRY SOIL & TARE (g)	25.43
Tare #: <u>96-A</u> WEIGHT TARE (g)	12.91
(C) WEIGHT AIR-DRIED SOIL (g)	12.72
(D) WEIGHT OVEN-DRIED SOIL (g)	12.52
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9843
CORRECTED SPLIT WEIGHT (B x E)	46.78

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	227.66
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	14.3%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	1.87	96.0%
5.4.197	#40	4.01	91.4%
5.4.198	#60	5.31	88.6%
5.4.199	#200	8.12	82.6%
5.4.200	#230	8.95	80.9%
5.4.201	#270	10.31	78.0%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-94 **Review Date** HS  
**Sample ID:** MM64THRU67\_SIEVE\_03102017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
#1	58.41	618.29	289.7	231.29	328.59	142%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	7:43
A) Tare No.				A-21	
B) Tare Weight, grams				13.36	
C) Wet Soil + Tare, grams - see comment				71.91	
D) Dry Soil + Tare, grams (initial)				42.24	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/17/2017	10:40
E) Dry Soil + Tare, grams (1 Hr. additional heating)				42.24	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/17/2017	11:40
F) Weight of Dry Soil, grams [E - B]				28.88	
G) Weight of Moisture, grams [C - E]				29.67	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				102.7%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/17/2017 11:09	
Date/Time End		4/17/2017 17:00	
I) Tare No.		10F	
J) Weight of Tare, grams		50.84	
K) Weight of Oven-Dried Soil + Tare, grams		80.00	
L) Weight of Oven- Dried Soil, grams [K - J]		29.16	
M) Weight of Ignited Soil + Tare, grams		75.83	
N) Ash, grams [M - J]		24.99	
O) Ash Content, % [N *100 / L]		85.7%	
P) Organic Matter, % [100 - O]		14.3%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-95

Date Reviewed: 5/2/2017

SAMPLE ID: MM50THRU56\_SIEVE\_03102017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: CL Dark Gray Sandy CLAY w/ Organic Material

Pan ID No.	100	
Air Dry Start Date/Time	4/11/2017	7:33
Air Dry End Date/Time	4/14/2017	9:46
(A) TOTAL AIR-DRIED WEIGHT (g)	342.79	
(B) SPLIT AIR-DRIED WEIGHT (g)	51.22	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)	24.77	
WEIGHT DRY SOIL & TARE (g)	24.53	
Tare #: <u>55</u>	WEIGHT TARE (g)	15.54
(C) WEIGHT AIR-DRIED SOIL (g)	9.23	
(D) WEIGHT OVEN-DRIED SOIL (g)	8.99	
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.974	
CORRECTED SPLIT WEIGHT (B x E)	49.89	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	333.88
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	10.3%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.41	99.2%
5.4.197	#40	1.20	97.6%
5.4.198	#60	1.89	96.2%
5.4.199	#200	4.40	91.2%
5.4.200	#230	5.59	88.8%
5.4.201	#270	7.23	85.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-95 **Review Date** HS  
**Sample ID:** MM50THRU56\_SIEVE\_03102017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
TARE	0	618.99	343.39	343.39	275.6	80.3%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	7:33
A) Tare No.				A-15	
B) Tare Weight, grams				13.32	
C) Wet Soil + Tare, grams - see comment				63.68	
D) Dry Soil + Tare, grams (initial)				39.00	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/13/2017	7:30
E) Dry Soil + Tare, grams (1 Hr. additional heating )				38.98	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/18/2017	ND
F) Weight of Dry Soil, grams [E - B]				25.68	
G) Weight of Moisture, grams [C - E]				24.68	
H) Moisture Content, % [G * 100 / F]				96.1%	
(based on oven-dried weight)					

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/18/2017	ND
Date/Time End		4/18/2017	ND
I) Tare No.		20	
J) Weight of Tare, grams		51.27	
K) Weight of Oven-Dried Soil + Tare, grams		72.57	
L) Weight of Oven- Dried Soil, grams [K - J]		21.30	
M) Weight of Ignited Soil + Tare, grams		70.38	
N) Ash, grams [M - J]		19.11	
O) Ash Content, % [N *100 / L]		89.7%	
P) Organic Matter, % [100 - O]		10.3%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-96

Date Reviewed: 5/2/2017

SAMPLE ID: OR\_TRAP1+2\_SIEVE\_03102017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: SC Gray Clayey SAND w/ Organic Material

Pan ID No.	9T	
Air Dry Start Date/Time	4/11/2017	8:07
Air Dry End Date/Time	4/17/2017	7:30
(A) TOTAL AIR-DRIED WEIGHT (g)	36.48	
(B) SPLIT AIR-DRIED WEIGHT (g)	35.81	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/21/2017
Sieve Analysis	4/24/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		NP	
WEIGHT DRY SOIL & TARE (g)		NP	
Tare #:	<u>NP</u>	WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)		0	
(D) WEIGHT OVEN-DRIED SOIL (g)		0	
(E) HYGR. MOIST. CORR FACTOR (D/C)		#DIV/0!	
CORRECTED SPLIT WEIGHT (B x E)		#DIV/0!	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	10.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	1.49	95.8%
5.4.197	#40	3.09	91.4%
5.4.198	#60	6.99	80.5%
5.4.199	#200	18.69	47.8%
5.4.200	#230	19.79	44.7%
5.4.201	#270	20.70	42.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-96 **Review Date** HS  
**Sample ID:** OR\_TRAP1+2\_SIEVE\_03102017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
9T	25.27	88.82	61.75	36.48	27.07	74%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	9:00
A) Tare No.				A-11	
B) Tare Weight, grams				13.45	
C) Wet Soil + Tare, grams - see comment				58.97	
D) Dry Soil + Tare, grams (initial)				37.98	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/20/2017	6:15
E) Dry Soil + Tare, grams (1 Hr. additional heating )				37.96	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/20/2017	7:30
F) Weight of Dry Soil, grams [E - B]				24.53	
G) Weight of Moisture, grams [C - E]				20.99	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				85.6%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/20/2017	ND
Date/Time End		ND	ND
I) Tare No.		14C	
J) Weight of Tare, grams		53.53	
K) Weight of Oven-Dried Soil + Tare, grams		77.87	
L) Weight of Oven- Dried Soil, grams [K - J]		24.34	
M) Weight of Ignited Soil + Tare, grams		75.31	
N) Ash, grams [M - J]		21.78	
O) Ash Content, % [N *100 / L]		89.5%	
P) Organic Matter, % [100 - O]		10.5%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, not enough sample was available to perform a Hygroscopic Moisture Content.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 237-97

Date Reviewed: 4/14/2017

SAMPLE ID: BU\_TRAP1+3\_SIEVE\_03112017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: SC Gray Clayey SAND w/ Organic Material

Pan ID No.	ND
Air Dry Start Date/Time	3/23/2017 7:00
Air Dry End Date/Time	3/25/2017 6:30
(A) TOTAL AIR-DRIED WEIGHT (g)	282.05
(B) SPLIT AIR-DRIED WEIGHT (g)	42.06
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/25/2017
Sieve Analysis	3/30/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	32.69
WEIGHT DRY SOIL & TARE (g)	32.54
Tare #: <u>133</u> WEIGHT TARE (g)	20.99
(C) WEIGHT AIR-DRIED SOIL (g)	11.7
(D) WEIGHT OVEN-DRIED SOIL (g)	11.55
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9872
CORRECTED SPLIT WEIGHT (B x E)	41.52

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	278.44
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	13.0%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.31	99.3%
5.4.58	#40	1.68	96.0%
5.4.145	#60	3.27	92.1%
5.4.162	#200	36.09	13.1%
5.4.181	#230	36.59	11.9%
5.4.189	#270	36.97	11.0%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 237-97 **Review Date** HS  
**Sample ID:** BU\_TRAP1+3\_SIEVE\_03112017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start			4/18/2017	ND				
A) Tare No.				133				
B) Tare Weight, grams				21.04				
C) Wet Soil + Tare, grams - see comment				32.60				
D) Dry Soil + Tare, grams (initial)				32.39				
Date/Time of initial Weight of Dry Soil Taken (initial)			4/20/2017	0.25				
E) Dry Soil + Tare, grams (1 Hr. additional heating)				32.37				
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)			4/20/2017	0.31				
F) Weight of Dry Soil, grams [E - B]				11.35				
G) Weight of Moisture, grams [C - E]				0.21				
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				1.9%				

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start			4/20/2017	6:30		
Date/Time End			4/20/2017	10:30		
I) Tare No.				14		
J) Weight of Tare, grams				52.59		
K) Weight of Oven-Dried Soil + Tare, grams				63.97		
L) Weight of Oven- Dried Soil, grams [K - J]				11.38		
M) Weight of Ignited Soil + Tare, grams				62.49		
N) Ash, grams [M - J]				9.90		
O) Ash Content, % [N *100 / L]				87.0%		
P) Organic Matter, % [100 - O]				13.0%		

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



**DATASHEET FOR THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS**  
 Performed in Accordance with ASTM D 854 - 14 (Method B)

PROJECT NAME: USDC Penobscot  
 PROJECT NUMBER: 3616166052.04A.4A0225  
 ASSIGNMENT NO.: 17/013  
 LAB ID NO.: 237-97  
 SAMPLE ID: BU\_TRAP1+3\_SIEVE\_03112017\_SED\_PRE  
 SAMPLE DESCRIPTION: Gray Sandy Clay w/ Organic Material

Date Tested: 4/6/2017  
 Tested By: CS  
 Date Reviewed: 4/14/2017  
 Reviewed By: HS

(A) Mass of oven-dry soil solids, grams:	36.21
(B) Mass of pycnometer and water at test temperature (T), grams:	1251.30
(C) Mass of pycnometer, water and soil solids at test temperature, grams:	1273.24
(T) Test temperature of pycnometer, water and soil, °C:	23.6
(G) Specific Gravity of solids at test temperature:	2.537
(K) <i>Temperature coefficient:</i>	0.99919
$G_{20^{\circ}\text{C}}$ (G x K) <b>SPECIFIC GRAVITY @ 20°C:</b>	<b>2.535</b>

MATERIAL TESTED (check one):  - # 4  - # 10

PREPARATION METHOD (check one):  DRY  WET (dispersed)

DRY WEIGHT DETERMINATION (AFTER TEST)	
DRY WEIGHT & TARE (g):	<u>427.94</u>
TARE WEIGHT (g):	<u>391.73</u>
TARE NO.:	<u>106</u>

RECOMMENDED DRY MASS OF TEST SPECIMENS WHEN USING 500 mL PYCNOMETER BASED ON SOIL TYPES	SP, SP-SM:	100 ± 10
	SP-SC, SM, SC:	75 ± 10
	SILT OR CLAY:	50 ± 10

**CALCULATIONS:** (G) Specific Gravity of solids at test temperature:  $G = \frac{A}{[B - (C - A)]}$   
 (G<sub>20</sub>) Specific Gravity at 20°C: G x K

REMARKS:

RECORD WEIGHTS TO NEAREST 0.01g RECORD TEMPERATURES TO NEAREST 0.1°C

TESTING EQUIPMENT	
THERMOMETER: <u>8.1.04</u>	SCALES: <u>3.1.141</u>
PYCNOMETER: <u>P-22</u>	OVEN: <u>5.2.02</u>

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 14567-98  
 SAMPLE ID: VE\_TRAP2+3\_SIEVE\_03112017\_SED\_PRE  
 SAMPLE DESCRIPTION: SM Gray Silty SAND w/ Organic Material

Date Reviewed: 4/18/2017  
 Reviewed By: HS

Pan ID No.	LL-3A
Air Dry Start Date/Time	3/22/2017 ND
Air Dry End Date/Time	3/25/2017 13:24
(A) TOTAL AIR-DRIED WEIGHT (g)	92.91
(B) SPLIT AIR-DRIED WEIGHT (g)	11.38
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/25/2017
Sieve Analysis	4/3/2017
Hydrometer	3/28/2017

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.83
WEIGHT DRY SOIL & TARE (g)	25.53
Tare #: <u>90</u> WEIGHT TARE (g)	15.5
(C) WEIGHT AIR-DRIED SOIL (g)	10.33
(D) WEIGHT OVEN-DRIED SOIL (g)	10.03
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.971
CORRECTED SPLIT WEIGHT (B x E)	11.05

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	90.22
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	57.9%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.55	95.0%
5.4.197	#40	2.99	72.9%
5.4.198	#60	4.66	57.8%
5.4.199	#200	5.65	48.9%
5.4.200	#230	5.69	48.5%
5.4.201	#270	5.77	47.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
6:00	9.2.03	ND	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
6:03	2	23.9	10.5
6:06	5	23.9	10
6:16	15	23.9	8.5
6:31	30	23.9	8
7:01	60	23.9	7.5
10:11	250	24.1	7
6:03	1440	21.4	7

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/18/2017  
**Lab ID No.** 14567-98 **Review Date** HS  
**Sample ID:** VE\_TRAP2+3\_SIEVE\_03112017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
LL-3A	59.03	614.64	151.94	92.91	462.7	498%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/22/2017	14:18
A) Tare No.				13	
B) Tare Weight, grams				15.45	
C) Wet Soil + Tare, grams - see comment				39.74	
D) Dry Soil + Tare, grams (initial)				19.36	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/23/2017	8:00
E) Dry Soil + Tare, grams (1 Hr. additional heating)				19.31	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				3/23/2017	9:00
F) Weight of Dry Soil, grams [E - B]				3.91	
G) Weight of Moisture, grams [C - E]				20.38	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				521.2%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/7/2017 6:00	
Date/Time End		4/7/2017 10:30	
I) Tare No.		P	
J) Weight of Tare, grams		49.37	
K) Weight of Oven-Dried Soil + Tare, grams		59.64	
L) Weight of Oven- Dried Soil, grams [K - J]		10.28	
M) Weight of Ignited Soil + Tare, grams		53.70	
N) Ash, grams [M - J]		4.33	
O) Ash Content, % [N *100 / L]		42.1%	
P) Organic Matter, % [100 - O]		57.9%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 24567-99

Date Reviewed: 4/14/2017

SAMPLE ID: VE\_TRAP2+3\_SIEVE\_03112017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic Material w/ Silt

Pan ID No.	104
Air Dry Start Date/Time	3/23/2017 9:00
Air Dry End Date/Time	3/25/2017 14:16
(A) TOTAL AIR-DRIED WEIGHT (g)	37.64
(B) SPLIT AIR-DRIED WEIGHT (g)	8.19
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	3/25/2017
Sieve Analysis	3/30/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	23.68
WEIGHT DRY SOIL & TARE (g)	22.56
Tare #: <u>A-1</u> WEIGHT TARE (g)	13.62
(C) WEIGHT AIR-DRIED SOIL (g)	10.06
(D) WEIGHT OVEN-DRIED SOIL (g)	8.94
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.8887
CORRECTED SPLIT WEIGHT (B x E)	7.28

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	33.45
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	77.7%
550 °C	71.6%
750 °C	72.4%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.11	98.5%
5.4.58	#40	2.05	71.8%
5.4.145	#60	4.27	41.3%
5.4.162	#200	5.95	18.3%
5.4.181	#230	6.06	16.8%
5.4.189	#270	6.16	15.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 24567-99 **Review Date** HS  
**Sample ID:** VE\_TRAP2+3\_SIEVE\_03112017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
104	57.77	367.92	95.41	37.64	272.51	724%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/23/2017	12:18
A) Tare No.							23	
B) Tare Weight, grams							15.75	
C) Wet Soil + Tare, grams - see comment							36.42	
D) Dry Soil + Tare, grams (initial)							17.74	
Date/Time of initial Weight of Dry Soil Taken (initial)							3/24/2017	6:25
E) Dry Soil + Tare, grams (1 Hr. additional heating)							ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							1.99	
G) Weight of Moisture, grams [C - E]							18.68	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							938.7%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/27/2017	4:48	3/28/2017	3:30	3/28/2017	11:00
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	3		H		H	
J) Weight of Tare, grams	51.33		50.34		50.34	
K) Weight of Oven-Dried Soil + Tare, grams	53.38		54.14		56.90	
L) Weight of Oven- Dried Soil, grams [K - J]	2.04		3.81		6.57	
M) Weight of Ignited Soil + Tare, grams	51.79		51.42		52.15	
N) Ash, grams [M - J]	0.46		1.08		1.81	
O) Ash Content, % [N *100 / L]	22.3%		28.4%		27.6%	
P) Organic Matter, % [100 - O]	77.7%		71.6%		72.4%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 237-100

Date Reviewed: 5/2/2017

SAMPLE ID: ON1\_SIEVE\_03112017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: ML Gray Sandy SILT w/ Organic Material

Pan ID No.	5T	
Air Dry Start Date/Time	4/25/2017	9:00
Air Dry End Date/Time	4/27/2017	8:00
(A) TOTAL AIR-DRIED WEIGHT (g)	240.23	
(B) SPLIT AIR-DRIED WEIGHT (g)	52.38	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/29/2017
Sieve Analysis	5/1/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT		
WEIGHT AIR-DRIED SOIL & TARE (g)		26.99
WEIGHT DRY SOIL & TARE (g)		26.9
Tare #:	<u>3</u>	WEIGHT TARE (g)
		15.92
(C) WEIGHT AIR-DRIED SOIL (g)		11.07
(D) WEIGHT OVEN-DRIED SOIL (g)		10.98
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9919
CORRECTED SPLIT WEIGHT (B x E)		51.96

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	238.28
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	18.1%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.60	98.8%
5.4.197	#40	2.79	94.6%
5.4.198	#60	4.30	91.7%
5.4.199	#200	7.20	86.1%
5.4.200	#230	7.75	85.1%
5.4.201	#270	8.66	83.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 237-100 **Review Date** HS  
**Sample ID:** ON1\_SIEVE\_03112017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	0	604.35	243.11	243.11	361.24	148.6%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	9:45
A) Tare No.				94A	
B) Tare Weight, grams				13.05	
C) Wet Soil + Tare, grams - see comment				71.69	
D) Dry Soil + Tare, grams (initial)				36.05	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/12/2017	8:36
E) Dry Soil + Tare, grams (1 Hr. additional heating)				36.01	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				23.00	
G) Weight of Moisture, grams [C - E]				35.64	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				155.0%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/29/2017 8:00	
Date/Time End		4/29/2017 12:30	
I) Tare No.		11	
J) Weight of Tare, grams		51.75	
K) Weight of Oven-Dried Soil + Tare, grams		73.85	
L) Weight of Oven- Dried Soil, grams [K - J]		22.10	
M) Weight of Ignited Soil + Tare, grams		69.84	
N) Ash, grams [M - J]		18.09	
O) Ash Content, % [N *100 / L]		81.9%	
P) Organic Matter, % [100 - O]		18.1%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-101

Date Reviewed: 5/2/2017

SAMPLE ID: VE\_TRAP1\_SIEVE\_03112017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: OL Brown Organic SILT with Sand

Pan ID No.	35A	
Air Dry Start Date/Time	3/22/2017	14:04
Air Dry End Date/Time	3/25/2017	14:32
(A) TOTAL AIR-DRIED WEIGHT (g)	71.37	
(B) SPLIT AIR-DRIED WEIGHT (g)	14.57	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/22/2017
Sieve Analysis	3/28/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		23.33	
WEIGHT DRY SOIL & TARE (g)		22.97	
Tare #:	<u>A-22</u>	WEIGHT TARE (g)	13.09
(C) WEIGHT AIR-DRIED SOIL (g)		10.24	
(D) WEIGHT OVEN-DRIED SOIL (g)		9.88	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9648	
CORRECTED SPLIT WEIGHT (B x E)		14.06	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	68.86
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	21.8%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.27	98.1%
5.4.197	#40	3.03	78.4%
5.4.198	#60	6.46	54.1%
5.4.199	#200	8.54	39.3%
5.4.200	#230	8.61	38.8%
5.4.201	#270	8.70	38.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-101 **Review Date** HS  
**Sample ID:** VE\_TRAP1\_SIEVE\_03112017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
35A	41.13	585.28	112.5	71.37	472.78	662%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/22/2017	14:04
A) Tare No.				31.00	
B) Tare Weight, grams				15.48	
C) Wet Soil + Tare, grams - see comment				44.53	
D) Dry Soil + Tare, grams (initial)				19.13	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/17/2017	10:00
E) Dry Soil + Tare, grams (1 Hr. additional heating )				19.11	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/17/2017	11:15
F) Weight of Dry Soil, grams [E - B]				3.63	
G) Weight of Moisture, grams [C - E]				25.42	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				700.3%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/17/2017 11:20	
Date/Time End		4/17/2017 16:00	
I) Tare No.		1C	
J) Weight of Tare, grams		54.38	
K) Weight of Oven-Dried Soil + Tare, grams		58.10	
L) Weight of Oven- Dried Soil, grams [K - J]		3.72	
M) Weight of Ignited Soil + Tare, grams		57.29	
N) Ash, grams [M - J]		2.91	
O) Ash Content, % [N *100 / L]		78.2%	
P) Organic Matter, % [100 - O]		21.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 237-102  
 SAMPLE ID: BU\_TRAP1+3\_SIEVE\_03112017\_WCH  
 SAMPLE DESCRIPTION: MH Brown Sandy SILT w/ Organic Material

Date Reviewed: 5/2/2017  
 Reviewed By: HS

Pan ID No.	LL-2A
Air Dry Start Date/Time	4/11/2017 6:56
Air Dry End Date/Time	4/14/2017 11:12
(A) TOTAL AIR-DRIED WEIGHT (g)	106.11
(B) SPLIT AIR-DRIED WEIGHT (g)	51.26
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	4/16/2017
Sieve Analysis	4/18/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	24.09
WEIGHT DRY SOIL & TARE (g)	23.76
Tare #: <u>3C</u> WEIGHT TARE (g)	14.43
(C) WEIGHT AIR-DRIED SOIL (g)	9.66
(D) WEIGHT OVEN-DRIED SOIL (g)	9.33
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9658
CORRECTED SPLIT WEIGHT (B x E)	49.51

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	102.5
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	19.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.44	99.6%
5.4.196	#20	0.59	98.4%
5.4.197	#40	2.44	94.7%
5.4.198	#60	4.71	90.1%
5.4.199	#200	10.65	78.2%
5.4.200	#230	14.05	71.3%
5.4.201	#270	17.96	63.5%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 237-102 **Review Date** HS  
**Sample ID:** BU\_TRAP1+3\_SIEVE\_03112017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
LL-2A	34.55	311.61	146.88	112.33	164.73	147%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	6:56
A) Tare No.				A5	
B) Tare Weight, grams				13.61	
C) Wet Soil + Tare, grams - see comment				43.34	
D) Dry Soil + Tare, grams (initial)				24.97	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/13/2017	6:00
E) Dry Soil + Tare, grams (1 Hr. additional heating )				24.95	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				4/18/2017	9:30
F) Weight of Dry Soil, grams [E - B]				11.36	
G) Weight of Moisture, grams [C - E]				18.37	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				161.7%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/18/2017	ND
Date/Time End		ND	ND
I) Tare No.		17	
J) Weight of Tare, grams		53.12	
K) Weight of Oven-Dried Soil + Tare, grams		62.82	
L) Weight of Oven- Dried Soil, grams [K - J]		9.70	
M) Weight of Ignited Soil + Tare, grams		60.93	
N) Ash, grams [M - J]		7.81	
O) Ash Content, % [N *100 / L]		80.5%	
P) Organic Matter, % [100 - O]		19.5%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11

**DATASHEET FOR THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS**  
 Performed in Accordance with ASTM D 854 - 14 (Method B)

PROJECT NAME: USDC Penobscot  
 PROJECT NUMBER: 3616166052.04A.4A0225  
 ASSIGNMENT NO.: 17/013  
 LAB ID NO.: 237-102  
 SAMPLE ID: BU\_TRAP1+3\_SIEVE\_03112017\_WCH  
 SAMPLE DESCRIPTION: Brown Sandy SILT w/ Organic Material

Date Tested: 4/19/2017  
 Tested By: CS  
 Date Reviewed: 5/2/2017  
 Reviewed By: HS

(A) Mass of oven-dry soil solids, grams:	42.27
(B) Mass of pycnometer and water at test temperature (T), grams:	669.21
(C) Mass of pycnometer, water and soil solids at test temperature, grams:	694.39
(T) Test temperature of pycnometer, water and soil, °C:	24.1
(G) Specific Gravity of solids at test temperature:	2.473
(K) <i>Temperature coefficient:</i>	0.99907
$G_{20^{\circ}\text{C}}$ (G x K) <b>SPECIFIC GRAVITY @ 20°C:</b>	<b>2.471</b>

MATERIAL TESTED (check one):  - # 4       - # 10

PREPARATION METHOD (check one):  DRY       WET (dispersed)

DRY WEIGHT DETERMINATION (AFTER TEST)	
DRY WEIGHT & TARE (g):	<u>434.04</u>
TARE WEIGHT (g):	<u>391.77</u>
TARE NO.:	<u>106</u>

RECOMMENDED DRY MASS OF TEST SPECIMENS WHEN USING 500 mL PYCNOMETER BASED ON SOIL TYPES	SP, SP-SM:	100 ± 10
	SP-SC, SM, SC:	75 ± 10
	SILT OR CLAY:	50 ± 10

**CALCULATIONS:** (G) Specific Gravity of solids at test temperature:  $G = \frac{A}{[B - (C-A)]}$   
 ( $G_{20}$ ) Specific Gravity at 20°C: G x K

REMARKS:

RECORD WEIGHTS TO NEAREST 0.01g RECORD TEMPERATURES TO NEAREST 0.1°C

TESTING EQUIPMENT	
THERMOMETER: <u>8.1.04</u>	SCALES: <u>3.1.141</u>
PYCNOMETER: <u>P-25</u>	OVEN: <u>5.2.02</u>

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 2456-103

Date Reviewed: 5/2/2017

SAMPLE ID: FF\_TRAP1+3\_SIEVE\_03112017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: OL Brown Organic Material w/ Silt

Pan ID No.	ND
Air Dry Start Date/Time	ND ND
Air Dry End Date/Time	ND ND
(A) TOTAL AIR-DRIED WEIGHT (g)	NP
(B) SPLIT AIR-DRIED WEIGHT (g)	NP
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	NP
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	60.2%
550 °C	67.1%
750 °C	67.9%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
	3/4"	NP	NP
	3/8"	NP	NP
	#4	NP	NP
	(G) #10	NP	NP
	#20	NP	NP
	#40	NP	NP
	#60	NP	NP
	#200	NP	NP
	#230	NP	NP
	#270	NP	NP
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 2456-103 **Review Date** HS  
**Sample ID:** FF\_TRAP1+3\_SIEVE\_03112017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
ND	ND	ND	ND	0	0	#DIV/0!

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start	5/4/2017	5:00	5/4/2017	5:00	5/4/2017	5:00		
A) Tare No.	23		B		1			
B) Tare Weight, grams	52.71		54.65		49.11			
C) Wet Soil + Tare, grams - see comment	56.47		62.58		55.23			
D) Dry Soil + Tare, grams (initial)	56.15		61.89		54.86			
Date/Time of initial Weight of Dry Soil Taken (initial)	5/5/2017	6:00	5/5/2017	0:25	5/5/2017	6:00		
E) Dry Soil + Tare, grams (1 Hr. additional heating)	56.15		61.87		54.84			
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)	5/5/2017	7:30	5/5/2017	0:31	5/5/2017	7:30		
F) Weight of Dry Soil, grams [E - B]	3.44		7.22		5.73			
G) Weight of Moisture, grams [C - E]	0.32		0.71		0.39			
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)	9.3%		9.8%		6.8%			

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	5/5/2017	8:00	5/5/2017	8:00	5/5/2017	12:30
Date/Time End	5/5/2017	12:00	5/5/2017	12:00	5/5/2017	17:00
I) Tare No.	2		F		2	
J) Weight of Tare, grams	51.79		48.21		51.79	
K) Weight of Oven-Dried Soil + Tare, grams	54.54		51.56		56.71	
L) Weight of Oven- Dried Soil, grams [K - J]	2.75		3.36		4.92	
M) Weight of Ignited Soil + Tare, grams	52.88		49.31		53.37	
N) Ash, grams [M - J]	1.09		1.10		1.58	
O) Ash Content, % [N *100 / L]	39.8%		32.9%		32.1%	
P) Organic Matter, % [100 - O]	60.2%		67.1%		67.9%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, only Organic Content ASTM D2974 testing was performed.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 1456-104

Date Reviewed: 5/2/2017

SAMPLE ID: FF\_TRAP1+3\_SIEVE\_03112017\_SED\_PRE

Reviewed By: HS

SAMPLE DESCRIPTION: SM Gray Silty SAND w/ Organic Material

Pan ID No.	29A
Air Dry Start Date/Time	3/24/2017 14:00
Air Dry End Date/Time	3/25/2017 15:29
(A) TOTAL AIR-DRIED WEIGHT (g)	64.54
(B) SPLIT AIR-DRIED WEIGHT (g)	13.54
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	4/10/2017
Sieve Analysis	4/13/2017
Hydrometer	4/10/2017

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	23.95
WEIGHT DRY SOIL & TARE (g)	23.67
Tare #: <u>U-27</u> WEIGHT TARE (g)	13.18
(C) WEIGHT AIR-DRIED SOIL (g)	10.77
(D) WEIGHT OVEN-DRIED SOIL (g)	10.49
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.974
CORRECTED SPLIT WEIGHT (B x E)	13.19

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	62.86
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	57.3%
550 °C	58.1%
750 °C	59.8%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.95	92.8%
5.4.197	#40	4.64	64.8%
5.4.198	#60	6.73	49.0%
5.4.199	#200	7.97	39.6%
5.4.200	#230	8.04	39.0%
5.4.201	#270	8.13	38.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
4:29	9.2.03	GC-1	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
4:32	2	23.2	8.5
4:35	5	23.2	8
4:45	15	23.0	7.5
5:00	30	23.2	7
5:30	60	22.9	7
8:40	250	23.3	6.5
4:32	1440	23.6	6

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 1456-104 **Review Date** HS  
**Sample ID:** FF\_TRAP1+3\_SIEVE\_03112017\_SED\_PRE

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
29A	56.39	469.83	120.93	64.54	348.9	541%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/22/2017	13:59
A) Tare No.							17.00	
B) Tare Weight, grams							15.73	
C) Wet Soil + Tare, grams - see comment							48.32	
D) Dry Soil + Tare, grams (initial)							19.77	
Date/Time of initial Weight of Dry Soil Taken (initial)							3/23/2017	13:30
E) Dry Soil + Tare, grams (1 Hr. additional heating)							19.78	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							3/23/2017	2:40
F) Weight of Dry Soil, grams [E - B]							4.05	
G) Weight of Moisture, grams [C - E]							28.54	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							704.7%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	4/4/2017	4:00	4/4/2017	4:00	4/4/2017	9:00
Date/Time End	4/4/2017	8:40	4/4/2017	8:40	4/4/2017	13:30
I) Tare No.	5		H		2	
J) Weight of Tare, grams	52.76		50.34		51.80	
K) Weight of Oven-Dried Soil + Tare, grams	58.70		56.93		58.27	
L) Weight of Oven- Dried Soil, grams [K - J]	5.94		6.59		6.47	
M) Weight of Ignited Soil + Tare, grams	55.30		53.10		54.39	
N) Ash, grams [M - J]	2.54		2.76		2.60	
O) Ash Content, % [N *100 / L]	42.7%		41.9%		40.2%	
P) Organic Matter, % [100 - O]	57.3%		58.1%		59.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11

**DATASHEET FOR THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS**  
Performed in Accordance with ASTM D 854 - 14 (Method B)

PROJECT NAME: <u>USDC Penobscot</u>	Date Tested: <u>4/13/2017</u>
PROJECT NUMBER: <u>3616166052.04A.4A0225</u>	Tested By: <u>CS</u>
ASSIGNMENT NO.: <u>17/013</u>	
LAB ID NO.: <u>1456-104</u>	
SAMPLE ID: <u>FF_TRAP1+3_SIEVE_03112017_SED_PRE</u>	Date Reviewed: <u>5/2/2017</u>
SAMPLE DESCRIPTION: <u>Gray Silty SAND w/ Organic Material</u>	Reviewed By: <u>HS</u>

<b>(A) Mass of oven-dry soil solids, grams:</b>	30.77
<b>(B) Mass of pycnometer and water at test temperature (T), grams:</b>	1251.60
<b>(C) Mass of pycnometer, water and soil solids at test temperature, grams:</b>	1270.49
<b>(T) Test temperature of pycnometer, water and soil, °C:</b>	22.60
<b>(G) Specific Gravity of solids at test temperature:</b>	2.590
<b>(K)</b>	<i>Temperature coefficient:</i> 0.99943
<b>G<sub>20°C</sub> (G x K)</b>	<b>SPECIFIC GRAVITY @ 20°C: 2.589</b>

MATERIAL TESTED (check one):  - # 4       - # 10

PREPARATION METHOD (check one):  DRY       WET (dispersed)

<b>DRY WEIGHT DETERMINATION (AFTER TEST)</b>	
DRY WEIGHT & TARE (g):	<u>285.10</u>
TARE WEIGHT (g):	<u>254.33</u>
TARE NO.:	<u>9B</u>

<b>RECOMMENDED DRY MASS OF TEST SPECIMENS WHEN USING 500 mL PYCNOMETER BASED ON SOIL TYPES</b>	<table border="0" style="width:100%"> <tr> <td style="padding: 5px;">SP, SP-SM:</td> <td align="right" style="padding: 5px;">100 ± 10</td> </tr> <tr> <td style="padding: 5px;">SP-SC, SM, SC:</td> <td align="right" style="padding: 5px;">75 ± 10</td> </tr> <tr> <td style="padding: 5px;">SILT OR CLAY:</td> <td align="right" style="padding: 5px;">50 ± 10</td> </tr> </table>	SP, SP-SM:	100 ± 10	SP-SC, SM, SC:	75 ± 10	SILT OR CLAY:	50 ± 10
SP, SP-SM:	100 ± 10						
SP-SC, SM, SC:	75 ± 10						
SILT OR CLAY:	50 ± 10						

**CALCULATIONS:** (G) Specific Gravity of solids at test temperature:  $G = \frac{A}{[B - (C-A)]}$   
(G<sub>20</sub>) Specific Gravity at 20°C: G x K

REMARKS:

RECORD WEIGHTS TO NEAREST 0.01g    RECORD TEMPERATURES TO NEAREST 0.1°C

<b>TESTING EQUIPMENT</b>	
THERMOMETER: <u>8.1.04</u>	SCALES: <u>3.1.141</u>
PYCNOMETER:	OVEN: <u>5.2.02</u>

TECHNICIAN: CS  
CALCULATIONS: CS  
CHECKED BY: HS



PROJECT NAME: USDC Penobscot  
 PROJECT NO: 3616166052.04A.4A0225  
 ASSIGNMENT NO. 17/013  
 LAB ID NO: 14567-105  
 SAMPLE ID: VE\_TRAP2+3\_SIEVE\_03122017\_SED  
 SAMPLE DESCRIPTION: ML Gray Sandy SILT w/ Organic Material

Date Reviewed: 5/2/2017  
 Reviewed By: HS

Pan ID No.	A123
Air Dry Start Date/Time	3/23/2017 7:36
Air Dry End Date/Time	3/25/2017 14:08
(A) TOTAL AIR-DRIED WEIGHT (g)	94.36
(B) SPLIT AIR-DRIED WEIGHT (g)	52.04
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	ND

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	25.97
WEIGHT DRY SOIL & TARE (g)	24.94
Tare #: <u>07</u> WEIGHT TARE (g)	15.48
(C) WEIGHT AIR-DRIED SOIL (g)	10.49
(D) WEIGHT OVEN-DRIED SOIL (g)	9.46
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9018
CORRECTED SPLIT WEIGHT (B x E)	46.93

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	85.09
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	35.1%
550 °C	18.0%
750 °C	39.3%

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.23	99.5%
5.4.58	#40	0.49	99.0%
5.4.145	#60	0.90	98.1%
5.4.162	#200	3.79	91.9%
5.4.181	#230	4.24	91.0%
5.4.189	#270	4.77	89.8%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
10:29	9.2.03	GC-6	3.26.17	
HYDROMETER CALIBRATION DATA		TEMP °C:	11.9	28.8
		READINGS:	-10	-4

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
10:32	2	23.8	32
10:35	5	23.8	25
10:45	15	23.8	23
11:00	30	23.8	21
11:30	60	23.8	19
2:40	250	23.2	16
10:32	1440	21.7	13

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable  
 SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 14567-105 **Review Date** HS  
**Sample ID:** VE\_TRAP2+3\_SIEVE\_03122017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
A123	69.48	326.89	163.84	94.36	163.05	173%

Oven Dried Sample	440° C (A)		550° C (B)		750° C (C)		ASTM D2216	
Date/Time Start							3/23/2017	14:19
A) Tare No.							4	
B) Tare Weight, grams							15.33	
C) Wet Soil + Tare, grams - see comment							33.36	
D) Dry Soil + Tare, grams (initial)							19.43	
Date/Time of initial Weight of Dry Soil Taken (initial)							3/24/2017	5:27
E) Dry Soil + Tare, grams (1 Hr. additional heating)							ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)							ND	ND
F) Weight of Dry Soil, grams [E - B]							4.10	
G) Weight of Moisture, grams [C - E]							13.93	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)							339.8%	

Organic Content	440° C (A)		550° C (B)		750° C (C)	
Date/Time Start	3/27/2017	5:00	3/28/2017	3:15	3/28/2017	11:06
Date/Time End	ND	ND	ND	ND	ND	ND
I) Tare No.	B		2		2	
J) Weight of Tare, grams	54.05		51.79		51.79	
K) Weight of Oven-Dried Soil + Tare, grams	58.52		54.60		65.76	
L) Weight of Oven- Dried Soil, grams [K - J]	4.47		2.81		13.97	
M) Weight of Ignited Soil + Tare, grams	56.95		54.09		60.27	
N) Ash, grams [M - J]	2.90		2.31		8.48	
O) Ash Content, % [N *100 / L]	64.9%		82.0%		60.7%	
P) Organic Matter, % [100 - O]	35.1%		18.0%		39.3%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, Specific Gravity ASTM D854 testing was not performed.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 237-106

Date Reviewed: 5/2/2017

SAMPLE ID: BU\_TRAP1+3\_SIEVE\_03122017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: SC Gray Organic SILT w/ Sand

Pan ID No.	99B	
Air Dry Start Date/Time	3/23/2017	ND
Air Dry End Date/Time	3/26/2017	13:42
(A) TOTAL AIR-DRIED WEIGHT (g)	183.37	
(B) SPLIT AIR-DRIED WEIGHT (g)	50.56	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	3/28/2017
Sieve Analysis	3/30/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		23.71	
WEIGHT DRY SOIL & TARE (g)		23.25	
Tare #:	<u>89A</u>	WEIGHT TARE (g)	13.39
(C) WEIGHT AIR-DRIED SOIL (g)		10.32	
(D) WEIGHT OVEN-DRIED SOIL (g)		9.86	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9554	
CORRECTED SPLIT WEIGHT (B x E)		48.31	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	175.19
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	16.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	2.01	95.8%
5.4.197	#40	5.75	88.1%
5.4.198	#60	7.92	83.6%
5.4.199	#200	35.42	26.7%
5.4.200	#230	36.30	24.9%
5.4.201	#270	37.12	23.2%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 237-106 **Review Date** HS  
**Sample ID:** BU\_TRAP1+3\_SIEVE\_03122017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
99B	55.31	502.66	238.68	183.37	263.98	144%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/23/2017	13:12
A) Tare No.				X-1	
B) Tare Weight, grams				24.68	
C) Wet Soil + Tare, grams - see comment				52.15	
D) Dry Soil + Tare, grams (initial)				34.12	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/20/2017	5:44
E) Dry Soil + Tare, grams (1 Hr. additional heating)				34.10	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/20/2017	6:40
F) Weight of Dry Soil, grams [E - B]				9.44	
G) Weight of Moisture, grams [C - E]				18.03	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				191.0%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/20/2017 6:30	
Date/Time End		4/20/2017 10:30	
I) Tare No.		17	
J) Weight of Tare, grams		53.11	
K) Weight of Oven-Dried Soil + Tare, grams		62.87	
L) Weight of Oven- Dried Soil, grams [K - J]		9.76	
M) Weight of Ignited Soil + Tare, grams		61.23	
N) Ash, grams [M - J]		8.12	
O) Ash Content, % [N *100 / L]		83.3%	
P) Organic Matter, % [100 - O]		16.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 14567-107

Date Reviewed: 5/2/2017

SAMPLE ID: FF\_TRAP1+3\_SIEVE\_03122017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: OL Black Organic SILT

Pan ID No.	NP
Air Dry Start Date/Time	NP NP
Air Dry End Date/Time	NP NP
(A) TOTAL AIR-DRIED WEIGHT (g)	NP
(B) SPLIT AIR-DRIED WEIGHT (g)	NP
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	NP
Sieve Analysis	NP
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	NP
WEIGHT DRY SOIL & TARE (g)	NP
Tare #: <u>NP</u> WEIGHT TARE (g)	NP
(C) WEIGHT AIR-DRIED SOIL (g)	0
(D) WEIGHT OVEN-DRIED SOIL (g)	0
(E) HYGR. MOIST. CORR FACTOR (D/C)	#DIV/0!
CORRECTED SPLIT WEIGHT (B x E)	#DIV/0!

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	#DIV/0!
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	51.5%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
	3/4"	NP	NP
	3/8"	NP	NP
	#4	NP	NP
	(G) #10	NP	NP
	#20	NP	NP
	#40	NP	NP
	#60	NP	NP
	#200	NP	NP
	#230	NP	NP
	#270	NP	NP
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 14567-107 **Review Date** HS  
**Sample ID:** FF\_TRAP1+3\_SIEVE\_03122017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
NP	NP	NP	NP	0	0	#DIV/0!

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/22/2017	6:00
A) Tare No.				14	
B) Tare Weight, grams				52.59	
C) Wet Soil + Tare, grams - see comment				83.53	
D) Dry Soil + Tare, grams (initial)				58.56	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/24/2017	6:15
E) Dry Soil + Tare, grams (1 Hr. additional heating)				58.53	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/24/2017	7:30
F) Weight of Dry Soil, grams [E - B]				5.97	
G) Weight of Moisture, grams [C - E]				24.97	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				418.3%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/24/2017 7:30	
Date/Time End		4/24/2017 13:00	
I) Tare No.		14	
J) Weight of Tare, grams		52.59	
K) Weight of Oven-Dried Soil + Tare, grams		58.60	
L) Weight of Oven- Dried Soil, grams [K - J]		6.01	
M) Weight of Ignited Soil + Tare, grams		55.50	
N) Ash, grams [M - J]		2.92	
O) Ash Content, % [N *100 / L]		48.5%	
P) Organic Matter, % [100 - O]		51.5%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Due to insufficient sample size, only Organic Content at TBD (550° C) testing was performed as requested.

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-108

Date Reviewed: 5/2/2017

SAMPLE ID: FF5354\_SIEVE\_03122017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: OL Brownish Gray Organic SILT w/ Sand

Pan ID No.	104
Air Dry Start Date/Time	4/11/2017 7:26
Air Dry End Date/Time	4/14/2017 11:35
(A) TOTAL AIR-DRIED WEIGHT (g)	71.76
(B) SPLIT AIR-DRIED WEIGHT (g)	48.42
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	4/12/2017
Sieve Analysis	4/14/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	24.44
WEIGHT DRY SOIL & TARE (g)	24.31
Tare #: <u>20C</u> WEIGHT TARE (g)	14.38
(C) WEIGHT AIR-DRIED SOIL (g)	10.06
(D) WEIGHT OVEN-DRIED SOIL (g)	9.93
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9871
CORRECTED SPLIT WEIGHT (B x E)	47.8

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	70.83
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	34.7%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	1.97	95.9%
5.4.197	#40	6.56	86.5%
5.4.198	#60	11.97	75.3%
5.4.199	#200	22.78	53.0%
5.4.200	#230	24.60	49.2%
5.4.201	#270	26.43	45.4%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-108 **Review Date** HS  
**Sample ID:** FF5354\_SIEVE\_03122017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
104	35.52	268.4	108.76	73.24	159.64	218%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	7:26
A) Tare No.				A-26	
B) Tare Weight, grams				13.33	
C) Wet Soil + Tare, grams - see comment				45.04	
D) Dry Soil + Tare, grams (initial)				22.31	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/17/2017	8:26
E) Dry Soil + Tare, grams (1 Hr. additional heating)				22.29	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				4/18/2017	8:31
F) Weight of Dry Soil, grams [E - B]				8.98	
G) Weight of Moisture, grams [C - E]				22.73	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				253.1%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/18/2017	ND
Date/Time End		ND	ND
I) Tare No.		9	
J) Weight of Tare, grams		53.41	
K) Weight of Oven-Dried Soil + Tare, grams		61.75	
L) Weight of Oven- Dried Soil, grams [K - J]		8.34	
M) Weight of Ignited Soil + Tare, grams		58.86	
N) Ash, grams [M - J]		5.45	
O) Ash Content, % [N *100 / L]		65.3%	
P) Organic Matter, % [100 - O]		34.7%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-109

Date Reviewed: 4/14/2017

SAMPLE ID: FF54\_10192016\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: OL Gray Organic SILT w/ Sand

Pan ID No.	31AB
Air Dry Start Date/Time	3/23/2017 8:45
Air Dry End Date/Time	3/26/2017 13:55
(A) TOTAL AIR-DRIED WEIGHT (g)	128.27
(B) SPLIT AIR-DRIED WEIGHT (g)	50.85
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	23.24
WEIGHT DRY SOIL & TARE (g)	22.81
Tare #: <u>A-20</u> WEIGHT TARE (g)	13.46
(C) WEIGHT AIR-DRIED SOIL (g)	9.78
(D) WEIGHT OVEN-DRIED SOIL (g)	9.35
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.956
CORRECTED SPLIT WEIGHT (B x E)	48.61

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	122.63
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	9.0%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
-	3/4"	0.00	100.0%
5.4.41	3/8"	0.00	100.0%
5.4.76B	#4	0.00	100.0%
5.4.138	(G) #10	0.00	100.0%
5.4.143	#20	0.29	99.4%
5.4.58	#40	1.62	96.7%
5.4.145	#60	3.20	93.4%
5.4.162	#200	8.57	82.4%
5.4.181	#230	10.51	78.4%
5.4.189	#270	12.99	73.3%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 4/14/2017  
**Lab ID No.** 23-109 **Review Date** HS  
**Sample ID:** FF54\_10192016\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
31AB	58.23	420.59	186.5	128.27	234.09	182.5%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				3/23/2017	14:15
A) Tare No.				5	
B) Tare Weight, grams				24.52	
C) Wet Soil + Tare, grams - see comment				50.32	
D) Dry Soil + Tare, grams (initial)				34.89	
Date/Time of initial Weight of Dry Soil Taken (initial)				3/23/2017	5:29
E) Dry Soil + Tare, grams (1 Hr. additional heating)				ND	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				10.37	
G) Weight of Moisture, grams [C - E]				15.43	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				148.8%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/16/2017 4:20	
Date/Time End		4/16/2017 9:50	
I) Tare No.		21	
J) Weight of Tare, grams		52.33	
K) Weight of Oven-Dried Soil + Tare, grams		62.49	
L) Weight of Oven- Dried Soil, grams [K - J]		10.17	
M) Weight of Ignited Soil + Tare, grams		61.58	
N) Ash, grams [M - J]		9.25	
O) Ash Content, % [N *100 / L]		91.0%	
P) Organic Matter, % [100 - O]		9.0%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11





PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-110

Date Reviewed: 5/2/2017

SAMPLE ID: VE505253\_SIEVE\_03072017\_WCH

Reviewed By: HS

SAMPLE DESCRIPTION: SP Gray Organic SAND

Pan ID No.	11T	
Air Dry Start Date/Time	4/11/2017	8:43
Air Dry End Date/Time	4/17/2017	8:06
(A) TOTAL AIR-DRIED WEIGHT (g)	70.72	
(B) SPLIT AIR-DRIED WEIGHT (g)	48.15	
+ #10 WASH PAN ID		

Test Performed	Date Tested
Hygroscopic Moisture	4/17/2017
Sieve Analysis	4/24/2017
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT			
WEIGHT AIR-DRIED SOIL & TARE (g)		27.35	
WEIGHT DRY SOIL & TARE (g)		27.01	
Tare #:	<u>14C</u>	WEIGHT TARE (g)	14.37
(C) WEIGHT AIR-DRIED SOIL (g)		12.98	
(D) WEIGHT OVEN-DRIED SOIL (g)		12.64	
(E) HYGR. MOIST. CORR FACTOR (D/C)		0.9738	
CORRECTED SPLIT WEIGHT (B x E)		46.89	

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	68.87
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	6.6%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.05	99.9%
5.4.196	#20	13.64	70.9%
5.4.197	#40	30.44	35.1%
5.4.198	#60	37.85	19.3%
5.4.199	#200	46.09	1.7%
5.4.200	#230	46.25	1.4%
5.4.201	#270	46.38	1.1%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS



**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-110 **Review Date** HS  
**Sample ID:** VE505253\_SIEVE\_03072017\_WCH

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
11T	0	201.7	70.72	70.72	130.98	185%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	8:43
A) Tare No.				131	
B) Tare Weight, grams				21.09	
C) Wet Soil + Tare, grams - see comment				63.95	
D) Dry Soil + Tare, grams (initial)				47.09	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/14/2017	7:06
E) Dry Soil + Tare, grams (1 Hr. additional heating )				47.05	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating )				ND	ND
F) Weight of Dry Soil, grams [E - B]				26.00	
G) Weight of Moisture, grams [C - E]				16.86	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				64.8%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/18/2017 10:00	
Date/Time End		ND ND	
I) Tare No.		12	
J) Weight of Tare, grams		52.40	
K) Weight of Oven-Dried Soil + Tare, grams		77.91	
L) Weight of Oven- Dried Soil, grams [K - J]		25.51	
M) Weight of Ignited Soil + Tare, grams		76.23	
N) Ash, grams [M - J]		23.83	
O) Ash Content, % [N *100 / L]		93.4%	
P) Organic Matter, % [100 - O]		6.6%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11



PROJECT NAME: USDC Penobscot

PROJECT NO: 3616166052.04A.4A0225

ASSIGNMENT NO. 17/013

LAB ID NO: 23-111

Date Reviewed: 5/2/2017

SAMPLE ID: FF5354\_SIEVE\_03132017\_SED

Reviewed By: HS

SAMPLE DESCRIPTION: OL Brownish Gray Sandy CLAY w/ Organic Material

Pan ID No.	LL-18
Air Dry Start Date/Time	4/11/2017 ND
Air Dry End Date/Time	4/14/2017 11:52
(A) TOTAL AIR-DRIED WEIGHT (g)	302.18
(B) SPLIT AIR-DRIED WEIGHT (g)	52.99
+ #10 WASH PAN ID	

Test Performed	Date Tested
Hygroscopic Moisture	ND
Sieve Analysis	ND
Hydrometer	NP

HYGROSCOPIC MOISTURE CONTENT	
WEIGHT AIR-DRIED SOIL & TARE (g)	24.94
WEIGHT DRY SOIL & TARE (g)	24.83
Tare #: <u>18C</u> WEIGHT TARE (g)	14.36
(C) WEIGHT AIR-DRIED SOIL (g)	10.58
(D) WEIGHT OVEN-DRIED SOIL (g)	10.47
(E) HYGR. MOIST. CORR FACTOR (D/C)	0.9896
CORRECTED SPLIT WEIGHT (B x E)	52.44

CALCULATED TOTAL DRY SAMPLE WEIGHT	
[(A - G) x E] + G (g)	299.04
Organic Content Test Results	
Temperature	Organic Content (%)
440 °C	NP
550 °C	10.8%
750 °C	NP

SIEVE ID	SIEVE	CUMUL.WT.RET.(g)	% PASSING
	1-1/2"		
	1"		
5.4.192	3/4"	0.00	100.0%
5.4.193	3/8"	0.00	100.0%
5.4.194	#4	0.00	100.0%
5.4.195	(G) #10	0.00	100.0%
5.4.196	#20	0.98	98.1%
5.4.197	#40	2.78	94.7%
5.4.198	#60	4.37	91.7%
5.4.199	#200	9.55	81.8%
5.4.200	#230	11.39	78.3%
5.4.201	#270	13.78	73.7%
	Pan		

TIME STARTED	HYDROMETER ID #	GC ID #	CALIBRATION REFERENCE	
NP	NP	NP	NP	
HYDROMETER CALIBRATION DATA		TEMP °C:	NP	NP
		READINGS:	NP	NP

TIME	ELAPSED TIME (MINUTES)	TEMP (°C)	READINGS
NP	2	NP	NP
NP	5	NP	NP
NP	15	NP	NP
NP	30	NP	NP
NP	60	NP	NP
NP	250	NP	NP
NP	1440	NP	NP

DESCRIPTION OF SAND AND GRAVEL PARTICLES:

HARDNESS:  Hard & Durable  Soft  Weathered & Friable

SHAPE:  Rounded  Angular

EQUIPMENT	EQUIPMENT ID USED (ID No.)		
SCALES:	<input checked="" type="checkbox"/> No. 3.1.99	<input checked="" type="checkbox"/> No. 5.2.05	<input checked="" type="checkbox"/> No. 5.4.63
OVEN:	<input checked="" type="checkbox"/> No. 5.2.09	<input checked="" type="checkbox"/> No. 5.2.11	<input type="checkbox"/> No.
THERMOMETER:	<input checked="" type="checkbox"/> No. 8.1.04	<input checked="" type="checkbox"/> No. 5.2.02	<input type="checkbox"/> No.
#200 WASH SIEVE:	<input checked="" type="checkbox"/> No. 5.4.190	<input checked="" type="checkbox"/> No. 2.4.03	<input type="checkbox"/> No.

TECHNICIAN: CS  
 CALCULATIONS: CS  
 CHECKED BY: HS





**Project Name** USDC Penobscot  
**Project No.** 3616166052.04A.4A0225 **Assignment No.:** 17/013  
**Tested By** CS **Reviewed By** 5/2/2017  
**Lab ID No.** 23-111 **Review Date** HS  
**Sample ID:** FF5354\_SIEVE\_03132017\_SED

Air Dried Moisture Content						
Pan ID	Tare Weight, grams	Wet Soil + Tare, grams	Dry Soil + Tare, grams	Dry Soil, grams	Moisture Weight, grams	Moisture Content %
LL-18	0	542.42	310.99	310.99	231.43	74.4%

Oven Dried Sample	440° C (A)	550° C (B)	750° C (C)	ASTM D2216	
Date/Time Start				4/11/2017	6:51
A) Tare No.				NRB	
B) Tare Weight, grams				31.73	
C) Wet Soil + Tare, grams - see comment				107.52	
D) Dry Soil + Tare, grams (initial)				72.55	
Date/Time of initial Weight of Dry Soil Taken (initial)				4/13/2017	9:00
E) Dry Soil + Tare, grams (1 Hr. additional heating)				72.50	
Date/Time of Weight of Dry Soil Taken (1 Hr. additional heating)				ND	ND
F) Weight of Dry Soil, grams [E - B]				40.82	
G) Weight of Moisture, grams [C - E]				34.97	
H) Moisture Content, % [G * 100 / F] (based on oven-dried weight)				85.7%	

Organic Content	440° C (A)	550° C (B)	750° C (C)
Date/Time Start		4/18/2017	ND
Date/Time End		ND	ND
I) Tare No.		3	
J) Weight of Tare, grams		51.35	
K) Weight of Oven-Dried Soil + Tare, grams		91.26	
L) Weight of Oven- Dried Soil, grams [K - J]		39.91	
M) Weight of Ignited Soil + Tare, grams		86.94	
N) Ash, grams [M - J]		35.58	
O) Ash Content, % [N *100 / L]		89.2%	
P) Organic Matter, % [100 - O]		10.8%	

Remarks: **NP = Not Performed ; ND = Not Determined**

Equipment used:

Oven: 5.2.09  
 Scale: 3.1.141

Muffle Furnace: 5.2.11